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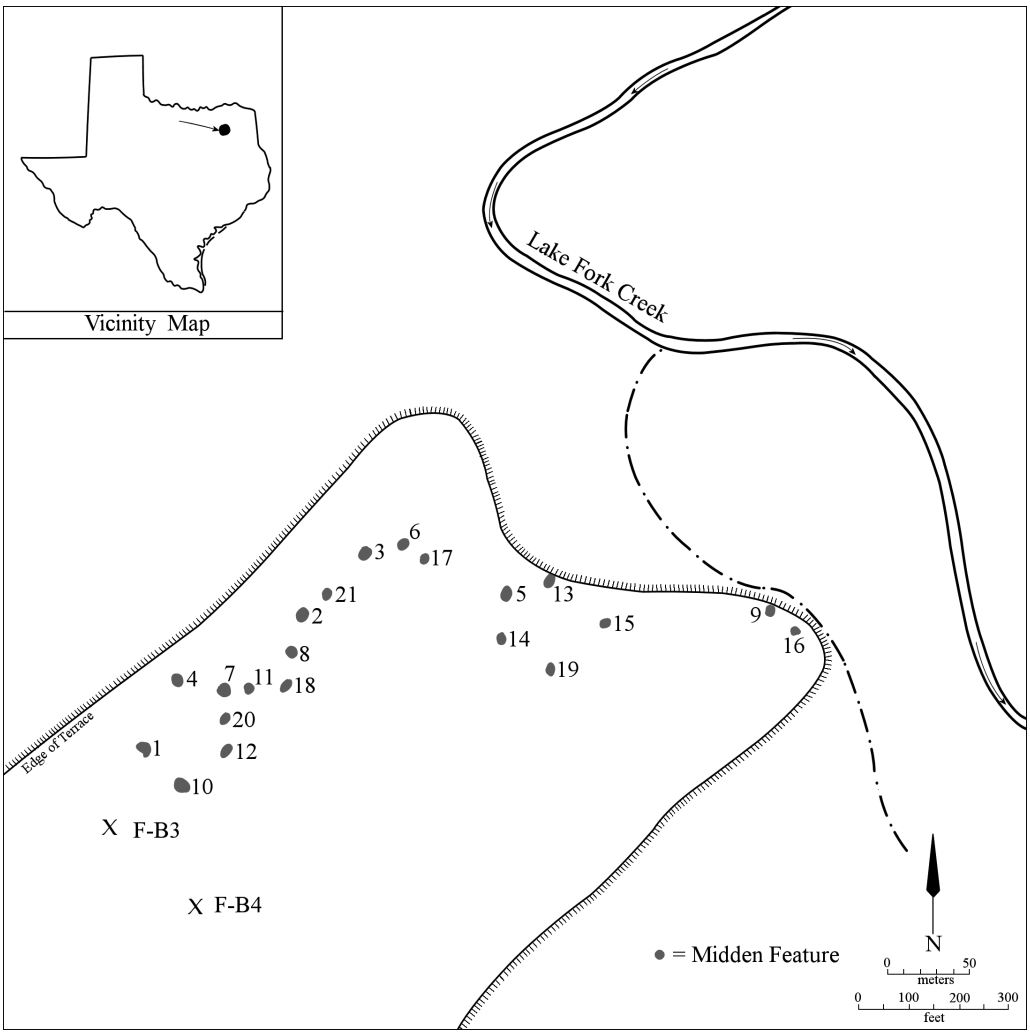
Journal of Northeast Texas Archaeology



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Midden features at the Gilbert site (41RA13), in Perttula article (Figure 1).

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Analysis of Ceramic Sherds from the Mid-18th Century Gilbert Site on Lake Fork Creek, Rains County, Texas

Timothy K. Perttula

INTRODUCTION

The Gilbert site (41RA13) is an important mid-18th century American Indian site on an alluvial terrace along Lake Fork Creek, adjacent to the upper part of Lake Fork Reservoir in Rains County, Texas (Figure 1). The site was first investigated in 1962 by the Dallas Archeological Society (Harris and Harris 1962), and based on the findings from that work, the Texas Archeological Society (TAS) had a field school at the site in June and July 1962 (Jelks 1962:6).

There are several notable features of the Gilbert site. First, it contains 21 midden mounds about 6-9 m in diameter and ca. 1 m in height spread out over ca. 50 aces of the alluvial terrace landform (see Figure 1). The middens do not represent habitation features, as the "only occupational features discovered besides the middens were two pits that were evidently used for storing grain or other products. No house floors, post-mold patterns, burials, hearths, or other such structural remains were found" (Jelks 1967:6). Further investigation by Blaine (1992:178, 182) identified other midden features (discussed further below, and the source of the ceramic sherds discussed in this article) and a well-preserved bell-shaped storage pit in Feature 20. The newly-discovered midden features were not mounded or had a clay cap, and neither contained any evidence of structural remains or features. Structural features are considered more likely to be found in inter-midden areas than in the middens themselves.

A second notable feature of the Gilbert site is the abundance of mid-18th century European trade goods in the archeological deposits, much of it likely obtained from French traders. These goods include metal tools (knives, axes, wedges, hatchets, hoes, scrapers, awls, chisels, scissors, arrow points, and a Spanish sword hilt), gun parts, ornaments (especially glass trade beads), brass kettles, horse trappings, flat and bottle glass, and chipped glass pieces (Jelks 1967:18-111; Blaine 1988, 1992).

Third, there was a substantial aboriginal ceramic sherd assemblage from the Gilbert site (Story et al. 1967). The analysis of the sherds suggested that they are from vessels "too stylistically and technologically diverse to represent only one *locally-produced* ceramic complex" (Story et al. 1967:186; italics in the original). Furthermore, "the majority, and perhaps even all, of the decorated ceramics [at the site] are derived ultimately from the Caddoan [sic], particularly Fulton Aspect [Late Caddo period], tradition. Many close parallels exist in the modes and styles of decoration, paste characteristics, and vessel forms" (Story et al. 1967:187).

And lastly, the various results of the investigations suggested that the site was a village occupied by southern Wichita groups, possibly the Tawakoni, Kichai, or Yscani Indians (Jelks 1967:244). This conclusion is far from uniformly accepted (see Gregory 1973; Perttula 1992, 2007), a point I will return to in the final section of this article. In the remainder of this article, I discuss the analysis of a small collection of previously unstudied ceramic sherds from two midden features (F-B3 and F-B4) excavated by Jay and Jerrylee Blaine from the Gilbert site. The focus of the analysis is to characterize the principal stylistic and technological characteristics of the ceramic sherd assemblages from these two middens, compare this assemblage in those aspects with the larger assemblage from numerous middens studied by Story et al. (1967), and then offer my own interpretation of the cultural affiliations of the Gilbert site occupants based on the ceramic sherd assemblage data.

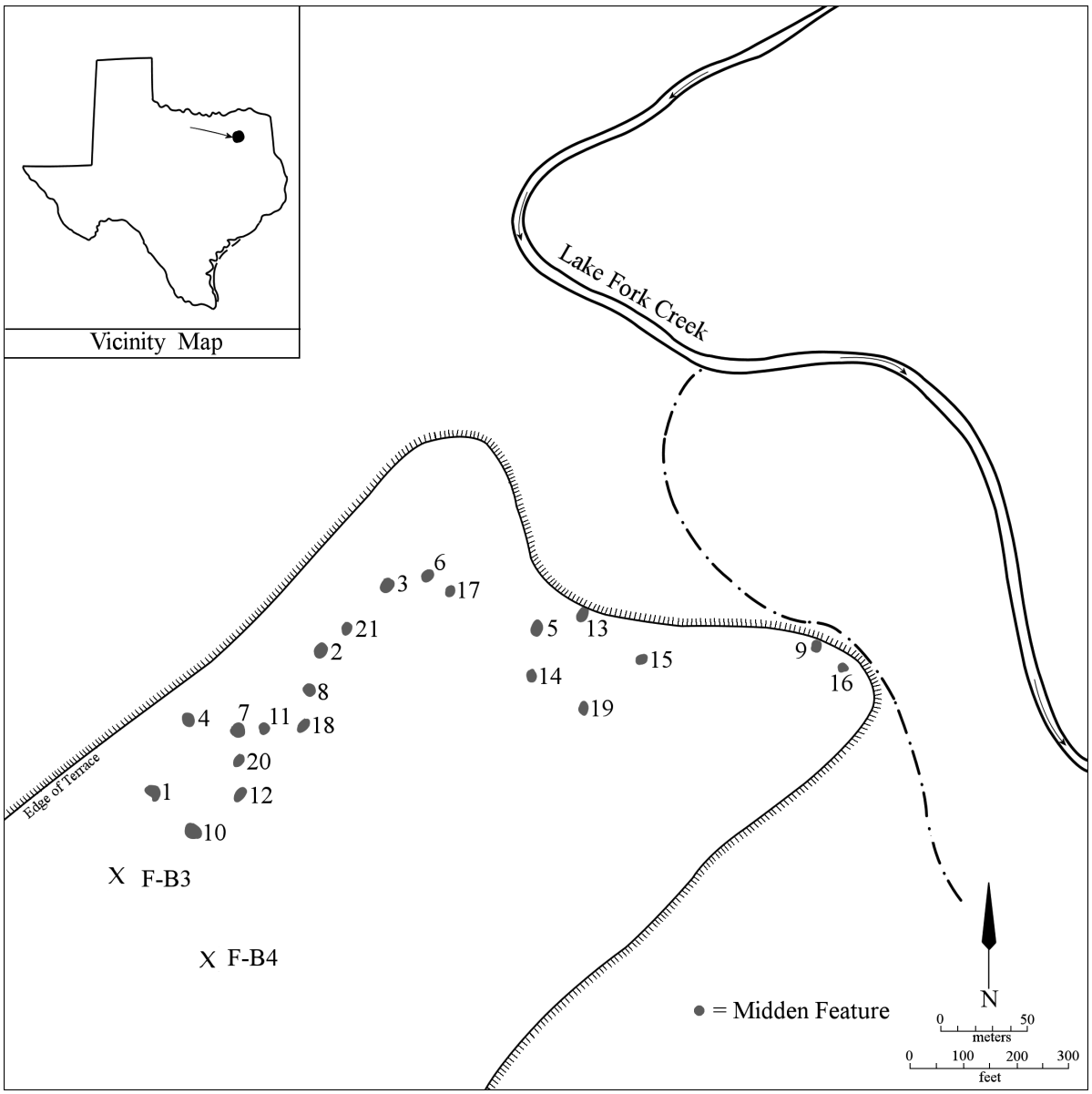

Figure 1. Map of the Gilbert site, showing the location of midden features 1-21 and features F-B3 and F-B4.

SITE BACKGROUND AND JAY BLAINE INVESTIGATIONS

In the years following the TAS field school, Jay and Jerrylee Blaine identified and investigated two midden features at the Gilbert site, labeled Feature F-B3 and Feature F-B4, in the southern and western parts of the alluvial terrace landform (see Figure 1). According to Jay Blaine, "these features were isolated individual middens and both are outside the previously known main site feature pattern. Feature F-B3's surface was even with the surrounding ground. Feature F-B4 was slightly elevated above the surrounding ground's surface" (Jay Blaine, August 18, 2010 personal communication). Blaine also noted that both features "lacked a clay topping but had the usual assortment of deer and box turtle remnants, glass beads, metals, etc. F-B3 contained the two unused metal hoes [see Blaine 1992:Figure 3] as well as some scarce (wine?) bottle evidence" (Jay Blaine, August 18, 2010 personal communication). Neither midden provided any direct evidence of structural remains, such as post holes, floors, pits, or concentrations of daub.

CERAMIC SHERD ASSEMBLAGE

As already mentioned, the ceramic sherds analyzed for this article are from the Blaine's excavations in Middens F-B3 and F-B4 (see Figure 1). This includes 53 sherds from F-B3 and 69 sherds from F-B4. There are a few pieces of burned clay (n=2) and sherdlets (n=7; sherds less than 1 cm in length and width) in the collections, but these are not further considered herein.

The analysis of the ceramic sherds from the Gilbert site is based on differences in temper and paste, type of sherd (i.e., rim, body, or base), rim and lip form (cf. Brown 1996:Figure 2-12), decoration (if present, including the identification of motifs and elements), surface treatment (smoothing, burnishing, or polishing; see Rice 1987), and firing conditions (cf. Teltser 1993). Temper is the deliberate and indeterminate materials found in the paste (Rice 1987:411), including a variety of tempers (grog or crushed sherds, burned mussel shell, burned bone, etc.). Sherd cross-sections were inspected macroscopically and with a 10X hand lens to determine the character of the paste and its inclusions. Determining the firing conditions was based on the identification of the firing core in the sherd cross-sections and the identification of oxidation patterns as defined in Teltser (1993:535-536 and Figure 2a-h) and Perttula (2005:Figure 5-30i-l). Finally, wall thickness was recorded in millimeters (mm), using a vernier caliper, along the mid-section of the sherd (see Appendix 1).

F-B3 Sherds

The 53 sherds from midden F-B3 include seven rim sherds, 45 body sherds, and one base sherd. They are from vessels made with six different temper-paste combinations, five of which have a clayey to silty paste: shell-tempered (n=18, including four rims, 37.5% of the sherds from the midden that were analyzed for temper and paste); bone-tempered (n=13, including two rims, 27.1%); grog-tempered (n=7, 14.6%); bone-hematite-tempered (n=7, including one rim, 14.6%); fine sandy paste (n=2, 4.2%), and grog-hematite-tempered (n=1, 2.1%). Differences in temper-paste and firing conditions (see below) suggest that the 53 sherds may be from as many as 19 separate vessels or vessel fragments that were discarded in the F-B3 midden.

Fourteen sherds, including two rims, are from the decorated portions of vessels. One is a small engraved sherd with a row of small engraved triangles (Figure 2b), probably from what Story et al. (1967:127) have identified as a Natchitoches Engraved variant bowl or carinated bowl with a fine sandy paste. The other 13 decorated sherds are from utility ware jars, including sherds with brushed (n=7), incised (n=4), punctated (n=1), and grooved (n=1) elements.

The brushed sherds from F-B3 are from bone-tempered (n=4) and bone-hematite-tempered (n=3) jars. Six have parallel brushing marks on them, probably representing the vertical brushing of jar body sections, and a seventh has opposed brushing marks. All four of the incised sherds are from shell-tempered jars. One Emory Punctated-Incised body sherd has parallel to curvilinear incised lines on it (cf. Story et al. 1967:Figure 57h), two others have closely-spaced curvilinear or straight incised lines, and the fourth incised body sherd has widely-spaced parallel incised lines as well as a single opposed diagonal incised line (Figure 3f).

The punctated sherd is an Emory Punctated-Incised jar rim (everted rim with rounded lip) with at least two rows of punctations beginning just below the vessel lip (see Figure 3e). It is a shell-tempered vessel. Another shell-tempered rim (direct rim and a rounded lip) has a broad horizontal grooved line below the lip. Similar grooved pottery vessels of the Lindsey Grooved type have been identified in 18th century Hasinai Caddo ceramic assemblages in the Neches-Angelina river basin in East Texas (Marceaux 2011), but they are tempered with grog or bone, never shell.

The plain rims from F-B3 are shell-tempered (n=2), bone-tempered (n=2), and bone-hematite-tempered (n=1). The shell-tempered rims are from everted rim jars with rounded lips. The bone-hematite-tempered rim is from a jar with a direct rim and a rounded lip. The two bone-tempered rims are from two

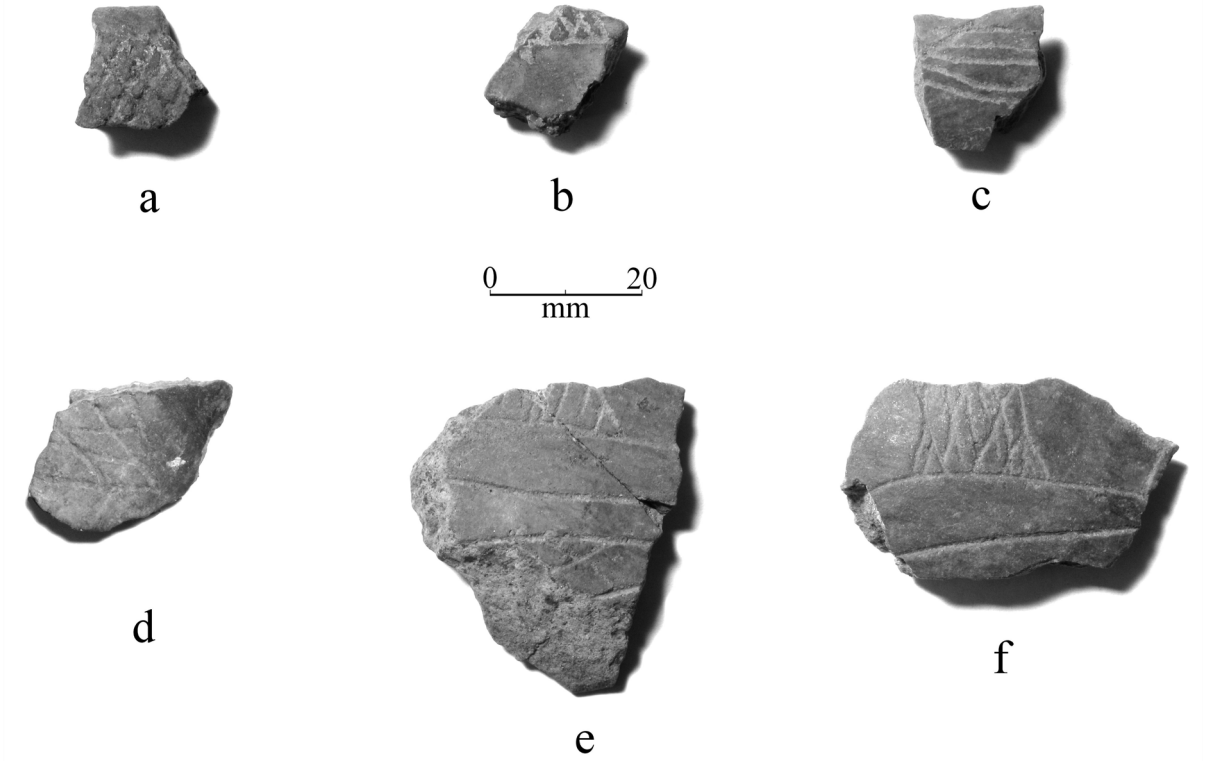

Figure 2. Engraved sherds from F-B3 and F-B4 middens: a, Womack Engraved; b, cf. Natchitoches Engraved, variant; c, Natchitoches Engraved variant; d, cross-hatched engraved zone; e, Natchitoches Engraved variant; f, Natchitoches Engraved variant. Provenience: a, F-B4, Lot 9; b, F-B3, Lot 25; c, F-B4, Lot 57; d, F-B4, Lot 57; e, F-B4, Lot 80; f, F-B4, Lot 73.

different vessels. The first of these is from a jar with organic residue preserved on its exterior surface. The rim is direct, with a flat and exterior folded lip. The second bone-tempered rim is a short inverted and interior thickened rim, perhaps from a Simms Engraved or Simms Plain carinated bowl or Womack Ware (Story et al. 1967:148-149), that has a rounded lip.

The different temper-paste sherd groupings from the F-B3 midden are from vessels that were fired in a variety of ways (Table 1). Shell-tempered vessels were overwhelmingly fired in a low oxygen or reducing environment, a firing strategy designed to improve the success in firing vessels with shell temper (see Feathers and Peacock 2008). Bone-tempered, grog-tempered, and bone-hematite-tempered sherds are from vessels primarily fired in a reducing environment, but cooled in the open air, leaving a thin lens of oxidized or lighter surface color along one or both vessel surfaces. Sherds from both incompletely oxidized and reduced-fired vessels are represented in the fine sandy paste sherds, while the grog-hematite-tempered sherds are from both vessels fired in an oxidizing environment as well as vessels that were sooted, smudged, or refired (Table 1).

In terms of surface treatment of the F-B3 sherds, both the bone-tempered and shell-tempered sherds are from vessels with interior smoothing (56-71% of the sherds from these groups with evidence of surface treatment); presumably this smoothing was done to decrease the permeability of these utility ware vessels used for cooking and food storage. Approximately 33% of the bone-tempered sherds have interior and/or exterior burnished surfaces, and are likely from bowls and carinated bowls. Burnished vessel surfaces are especially common on fine sandy paste (50%) and grog-tempered (85.7%) sherds, indicating that these temper-paste groupings are also primarily from burnished fine ware vessels that were discarded in the F-B3 midden.

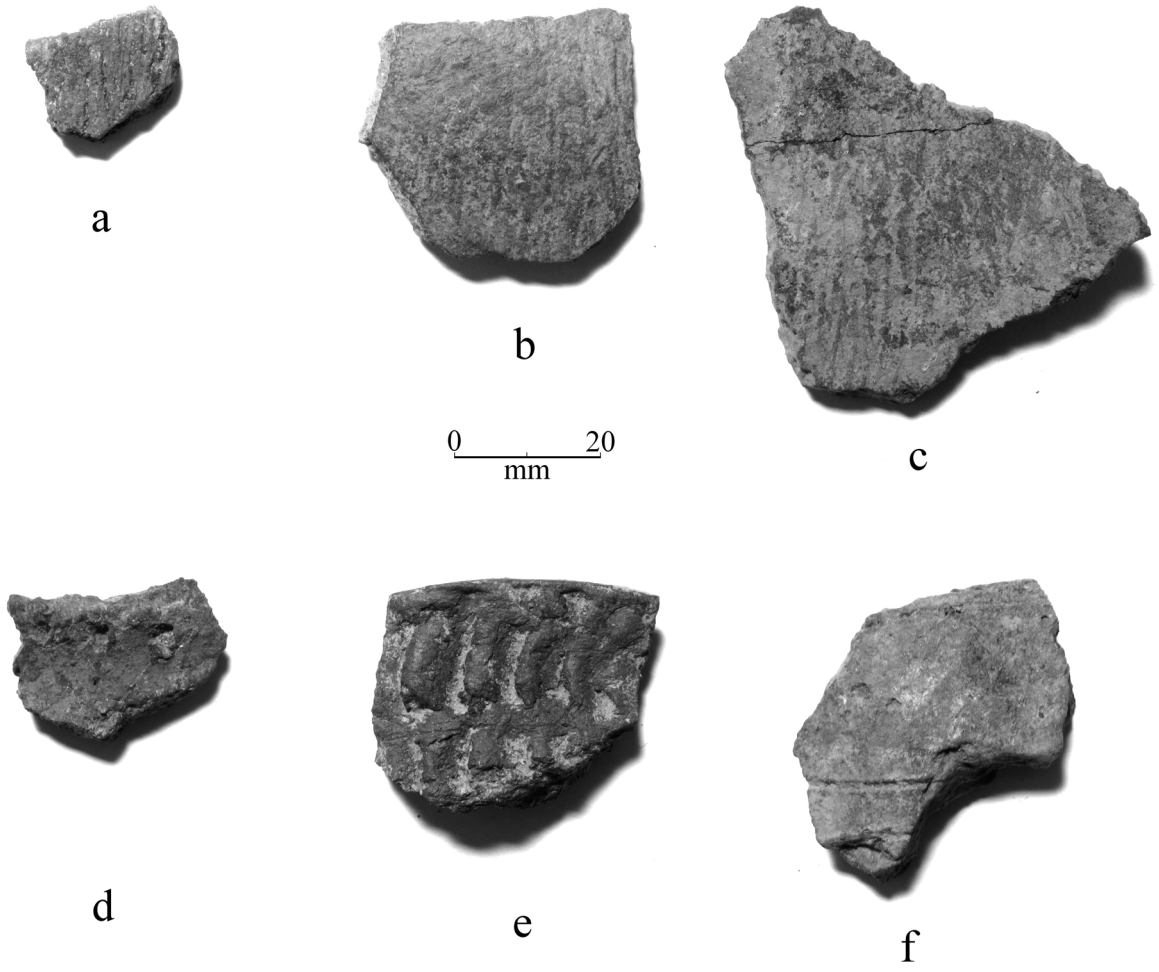

Figure 3. Utility ware sherds from the F-B3 and F-B4 middens: a, parallel brushed; b, horizontal and overlapping brushed; c, parallel brushed; d, tool punctated row at rim-body juncture; e, Emory Punctated, f, parallel and diagonal incised lines. Provenience: a, F-B4, Lot 74; b, F-B4, Lot 55; c, F-B4, Lot 39; d, F-B4, Lot 26; e, F-B3, Lot 28; f, F-B3, Lot 24.

In general, the sherds from the F-B3 midden are from moderately thin-walled vessels with rim thickness ranges of 5.4-8.9 mm and body sherd thickness ranges of 4.6-8.4 mm. The one base sherd is 8.4 mm thick. The bone-tempered sherds are from vessels of two different thickness ranges: 4.5-5.6 mm and 6.5-7.0 mm, presumably reflecting size differences, while the shell-tempered sherds (both rim and body sherds) have a continuous thickness range of 6.1-7.8 mm, and the grog-tempered body sherds have a continuous thickness range of 6.3-7.4 mm. The one fine ware body sherd (fine sandy paste) is 6.7 mm thick, while the decorated utility ware sherds range from 6.9-8.3 mm (rim) to 5.4-7.8 mm (body) in thickness.

F-B4 Sherds

The F-B4 midden has 69 sherds, five rim sherds, 63 body sherds, and one base sherd. They are made from nine different temper-paste combinations, six of which have a clayey to silty paste: bone-tempered (n=27, including one rim, representing 45% of the 60 sherds analyzed in detail from this midden); fine sandy paste-hematite-tempered (n=10, 16.7%); fine sandy paste (n=9, 15%); shell-tempered (n=5, 8.3%, including one rim); grog-tempered (n=5, 8.3%, including two rims); bone-hematite-tempered (n=1, 1.7%); grog-bone-tempered (n=1, 1.7%); bone-shell-tempered (n=1, 1.7%); and fine sandy paste-shell-tempered, n=1, 1.7%). Differences in temper-paste and firing conditions (see below) suggest that the 69

Table 1. Firing conditions for the F-B3 sherds.

Firing conditions	bone	shell	fSP	grog	bone-hematite	grog-hematite
Oxidizing	–	5.6*	–	–	–	33.3
Incompletely oxidized	7.7	–	50.0	14.3	–	–
Reducing	23.1	94.4	–	–	28.6	–
Reduced, but cooled in open air	61.5	–	50.0	71.4	71.4	–
Sooted, smudged, or refired	7.7	–	–	14.3	–	66.7
Totals	13	18	2	7	7	3

*percentage; fSP=fine sandy paste

sherds may be from as many as 20 separate vessels or vessel fragments that were discarded in the F-B4 midden.

Forty-one sherds, including two rims, are from the decorated portions of vessels. About 41% (n=17) are from engraved (n=16) and red-slipped (n=1) fine ware vessels. The other 24 decorated sherds are from utility ware jars, including sherds with brushed (n=22), incised (n=1), and punctated (n=1) elements.

The engraved sherds from fine ware vessels include one rim sherd and 16 body sherds. The rim sherd (direct rim and a rounded lip) is from a grog-tempered Womack Engraved vessel that has a cross-hatched engraved zone that begins below the lip (see Figure 2a). Three other body sherds from F-B4, two with a fine sandy paste (one of which has pieces of crushed hematite temper), have cross-hatched engraved Womack Engraved designs (see Figure 2d). Six engraved body sherds resemble the Natchitoches Engraved variant group defined by Story et al. (1967:127-129 and Figure 54c-bb); they are from sandy paste and sandy paste-hematite-tempered burnished vessels. Each of the sherds have hachured triangular areas (see Figure 2c, e) and/or brackets (see Figure 2f) embedded in or pendant from areas of straight and diagonal engraved lines. One of these sherds has a brown-colored slip on interior and exterior vessel surfaces.

One small body sherd has two closely-spaced horizontal engraved lines, suggestive of Simms Engraved, but the lines lack tick marks. Story et al's (1967:133 and Figure 56a-b) engraved Sherd Group 1 have horizontal engraved lines. Other engraved sherds have closely-spaced parallel lines (n=1), straight and curvilinear lines (n=1, fine sandy paste), parallel and opposed lines (n=1, fine sandy paste and hematite-tempered), one bottle sherd with curvilinear lines, and one body sherd with opposed engraved lines (n=1, bone- and shell-tempered).

The one red-slipped sherd is a rim (direct rim and a rounded lip) from a grog-tempered bowl. The bowl has a hematite-rich clay slip on both vessel surfaces. Red-slipped vessels are a distinctive feature of Middle (ca. A.D. 1200-1450) and Late (ca. A.D. 1450-1680) Caddo ceramic assemblages in East Texas, particularly in the upper basins of the Red, Sulphur, Big Cypress, and Sabine River stream basins. Caddo groups that remained in one or all of these areas—except in the Red River, where after ca. A.D. 1300, all ceramics were tempered with shell—in the mid-18th century may be the source of this fine ware at the Gilbert site.

More than 95% of the brushed sherds have parallel brushing marks on them (see Figure 3a, c). The other has horizontal and overlapping brushing marks (see Figure 3b). Most of the brushed sherds are from bone-tempered vessels (n=16), with smaller numbers of sherds with grog temper (n=2) or a non-tempered fine sandy paste (n=1).

The incised and punctated sherds are from shell-tempered and bone-tempered vessels. The incised sherd, probably from an Emory Punctated-Incised jar, has only a single straight incised line on it, while the punctated bone-tempered vessel sherd from a second Emory Punctated-Incised jar has a row of tool punctations at the rim-body juncture (see Figure 3d). Story et al. (1967:137) describe the temper and paste of Emory Punctated-Incised vessels as having either sandy paste, sandy paste and shell-tempered, sandy paste and grog-tempered, or sandy paste and bone-tempered in "varying quantities."

The plain rims from F-B4 are shell-tempered (n=1) and bone-tempered (n=1); the temper and paste was not analyzed on a small third rim. The shell-tempered rim is from a bowl or carinated bowl with an inverted rim and a rounded lip, perhaps from a Womack Plain vessel or Womack Ware (Story et al. 1967:146, 148-149 and Figures 60 and 61), that has a rounded lip. The bone-tempered rim is from a jar with an everted rim and a rounded and exterior folded lip. The third plain rim also has a rounded and exterior folded lip, and may also be from a jar.

The different temper-paste sherd groupings from the F-B4 midden are from vessels that were fired in a variety of ways (Table 2). Bone-tempered, fine sandy paste, grog-tempered, shell-tempered, fine sandy paste-hematite-tempered, grog-bone-tempered, bone-shell-tempered, and fine sandy paste-shell-tempered sherds are from vessels primarily if not exclusively fired in a reducing environment. Those with bone temper and a fine sandy paste tended to also be cooled in the open air, leaving a thin lens of oxidized or lighter surface color along one or both vessel surfaces. Temper-paste groups that were primarily fired and cooled in a reducing environment—leaving the vessel sherds with a black core and a very dark gray to black color on both vessel surfaces—include the grog-tempered, shell-tempered, and bone-shell-tempered groups (Table 2). Sherds from both incompletely oxidized and oxidized-fired vessels are represented in the fine sandy paste sherds, the bone-hematite-tempered sherds, and the shell-tempered group. One shell-tempered sherd is from a vessel that was sooted, smudged, or refired (Table 2).

Table 2. Firing conditions for the F-B4 sherds.

Firing conditions	b	fSP	g	b-h	sh	fSP-h	g-b	b-sh	fSP-sh
Oxidizing	–	–	–	100.0*	–	–	–	–	–
Incompletely oxidized	–	14.3	–	–	20.0	–	–	–	–
Reducing	42.9	28.6	80.0	–	40.0	–	–	100.0	–
Reduced, but cooled in open air	57.1	57.1	20.0	–	20.0	100.0	100.0	–	100.0
Sooted, smudged, or refired	–	–	–	–	20.0	–	–	–	–
Totals	28	7	5	1	5	9	1	1	1

*percentage; b=bone-tempered; fSP=fine sandy paste; g-grog; b-h=bone-hematite-tempered; sh=shell-tempered; fSP-h=fine sandy paste and hematite-tempered; g-b=grog-bone-tempered; b-sh; bone and shell-tempered; fSP-sh=fine sandy paste and shell-tempered

Both the bone-tempered, fine sandy paste, and grog-tempered sherds in the F-B4 midden are from vessels with interior smoothing (40-61% of the sherds from these groups with evidence of surface treatment); Utility wares tended to be smoothed on the interior vessel surface, primarily to lower the permeability and increase the heating effectiveness of particular vessels (see Rice 1996:148), namely the utility ware vessels used for cooking. Between 7.1-42.9% of the fine sandy paste and bone-tempered sherds are

also smoothed on their exterior surfaces, and these are likely from bowls and carinated bowls. Interior and/or exterior burnished surfaces on sherds from bowls and carinated bowls are also common in the F-B4 ceramic assemblage, except in the bone-tempered sherds, where burnished sherds are conspicuous in their absence in the F-B4 midden, but are relatively abundant in the F-B3 midden assemblage. Burnished vessel surfaces are especially common on fine sandy paste (57.1%), grog-tempered (80.0%), shell-tempered (60%), fine sandy paste-hematite-tempered (67%), and bone-shell-tempered (100%) sherds. These temper-paste groupings are also primarily from burnished fine ware vessels that were discarded in the F-B4 midden.

Comparable to the sherds from the F-B3 midden, the F-B4 sherds are from moderately thin-walled vessels with rim thickness ranges of 4.2-7.0 mm and body sherd thickness ranges of 3.6-8.0 mm. The one base sherd is 9.2 mm thick. The bone-tempered sherds are from vessels of two different thickness ranges: 4.7-6.6 mm and 6.9-7.2 mm, presumably reflecting vessel size differences, and there are also two thickness/size ranges apparent in the fine sandy paste sherds (5.3-6.6 mm and 7.3-8.0 mm); the grog-tempered sherds (5.1-5.6 mm and 6.1-6.6 mm); the shell-tempered sherds (5.6 mm and 6.5-7.0 mm); and the fine sandy paste-hematite-tempered sherds (5.1-5.6 mm and 6.7-7.6 mm). The mean thickness of the F-B4 fine ware rim sherds (n=2) is 5.3 ± 1.2 mm, and the fine ware body sherd mean thickness is 6.39 ± 0.73 mm. The decorated utility ware body sherds have a mean thickness of 5.92 ± 0.61 mm.

COMPARISONS TO EARLIER GILBERT SITE SHERD ANALYSES

The ceramic sherds from the F-B3 and F-B4 middens are from the same range of broken vessels of various kinds as has been documented by Story et al. (1967). As enumerated in Table 3, the sherds from other middens at the Gilbert site are dominated by those from Womack Engraved, incised and punctated Emory Punctated-Incised vessels, brushed and brushed-combed jars, Natchitoches Engraved and Natchitoches Engraved variant bowls and carinated bowls, and Simms Engraved vessels. In the F-B3 and F-B4 middens, brushed sherds are abundant (especially in F-B4), there are Emory Punctated-Incised jar sherds, as well as sherds from Womack Engraved and Natchitoches Engraved vessels; there are no sherds from Simms Engraved vessels, although one rim sherd from F-B3 may be from a Simms Plain vessel (or Womack Plain). The ceramics from the FB-3 and F-B4 middens are clearly from the same component as the 21 other midden features distributed across the Gilbert site.

Looking in more detail at the distribution of the different kinds of decorated and plain ceramic types and groups, Womack Engraved vessel sherds, bone-tempered sherds, and shell-tempered sherds are the most widely distributed at the Gilbert site, being found with some frequency in virtually every one of the investigated middens, including F-B3 and F-B4 (Figure 4a, d-e and Table 4). These comprise the key set of ceramic fine wares and plain wares in this mid-18th century ceramic assemblage, along with Womack Plain, Womack Ware, incised sherds, and Natchitoches Engraved.

The principal cluster (i.e., highest percentages in the various investigated middens, ranging from 12.7-51.4%) of Womack Engraved sherds at the Gilbert site is in the southwestern part of the site (see Figure 4a). Natchitoches Engraved and Natchitoches Engraved variant sherds occur in two small clusters in the southwestern (and includes F-B3 and F-B4 middens) and northwestern parts of the site (see Figure 4b), in frequencies ranging between 6.1-9.1% of the sherds in each investigated midden.

Brushed pottery has a wide distribution across the Gilbert site, occurring in middens from the southwestern and northwestern parts of the site as well as in a central area cluster (see Figure 4c). Brushed sherds are abundant in both F-B3 and F-B4 middens (13.2-31.9%), as they are in middens 6 (9.1%), 12 (25.7%), and 15 (12.9%).

Bone-tempered sherds occur throughout the site, but the highest proportions (27.1-87.9%) of bone-tempered sherds are found in midden features (including F-B3 and F-B4) in the southwestern part of the

Table 3. Decorated sherds from features (see Story et al. 1967:Tables 7 and 8).

Fea. No.	WE	NE	ME	SE	P	I	B-C/ C	A/ A-I	EP	B	B-P
1	48	2	9	29	5	9	–	1	2	4	13
2	31	–	5	28	–	7	–	–	–	2	–
3	48	40	40	–	–	20	37	–	–	32	–
4	23	2	3	–	3	5	–	1	9	9	6
5	19	–	9	1	7	27	–	2	–	1	–
6	4	17	17	–	–	18	–	–	1	17	–
7	9	10	1	1	2	1	9	–	–	3	–
8	–	–	–	–	–	1	1	–	–	2	–
10	–	1	2	–	–	–	–	–	–	–	–
11	6	–	1	–	–	1	–	–	–	–	–
12	18	–	2	–	1	–	–	–	–	9	–
15	1	–	1	–	–	–	1	–	–	4	–
16	1	–	1	–	–	2	–	–	–	–	–
17	6	–	–	–	–	1	–	–	–	–	–
18*	1	–	–	–	–	1	–	–	–	1	–
19	–	–	–	–	–	3	–	–	–	–	–
20	1	–	–	–	–	–	–	–	–	1	–
Totals	216	72	91	59	18	96	47	4	12	85	19

WE=Womack Engraved an variants; NE=Natchitoches Engraved and variants; ME=miscellaneous engraved; SE=Simms Engraved; P=punctated; I=incised; B-C=brushed-combed; C=combed; A=appliqued; A-I=appliqued-incised; EP=Emory Punctated; B=brushed; B-P=brushed-punctated
*does not include four pinched sherds

site (see Figure 4d). Midden 18 has the highest proportion (87.9%) of bone-tempered sherds. Shell-tempered sherds are primarily clustered in the same middens where bone-tempered sherds predominate (see Figure 4e), except that middens in the northwestern (Midden 3) and north central (Midden 5) areas, as well as Midden 16 in the northeast part of the site, also have considerable proportions of shell-tempered ceramics. The proportion of shell-tempered pottery in these middens ranges from 19.7 to 80%. Middens where grog-tempered sherds are common cluster in the southwestern (including F-B3 and F-B4) and northwestern (Midden 6) parts of the Gilbert site (see Figure 4f).

CONCLUSIONS

The analysis of the ceramic sherds from the F-B3 and F-B4 middens at the southern end of the Gilbert site has disclosed that they contain the same range of Caddo decorated fine wares and utility wares, namely Womack Engraved, Natchitoches Engraved variant, Emory Punctated-Incised, and brushed jars, as has been previously documented by Story et al. (1967) from the other investigated middens at the site (see also Table 3). Furthermore, the temper and paste groups in these assemblages, including shell-

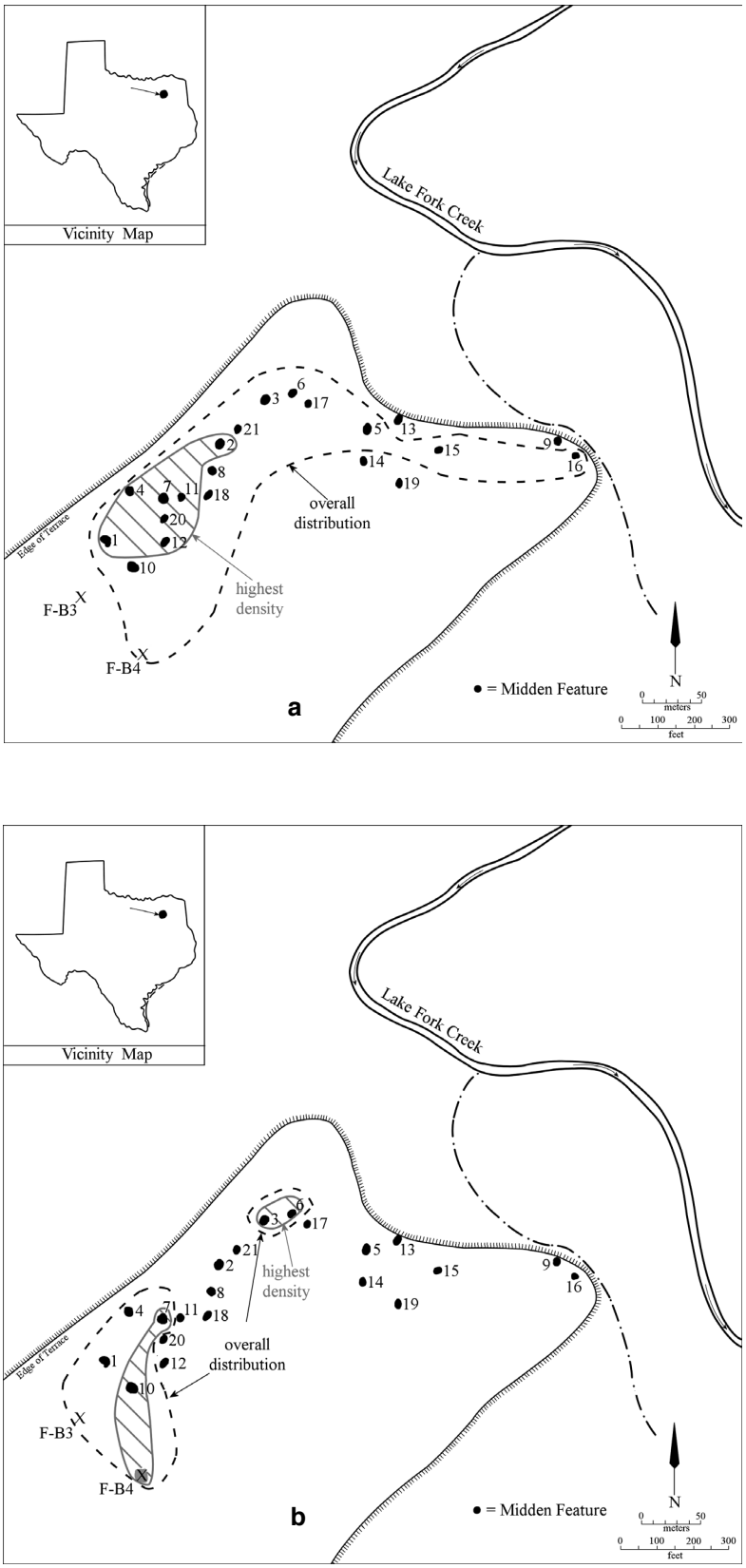

Figure 4. Distribution and highest percentages of selected ceramic types and groups at the Gilbert site: a, Womack Engraved; b, Natchitoches Engraved and variants;.

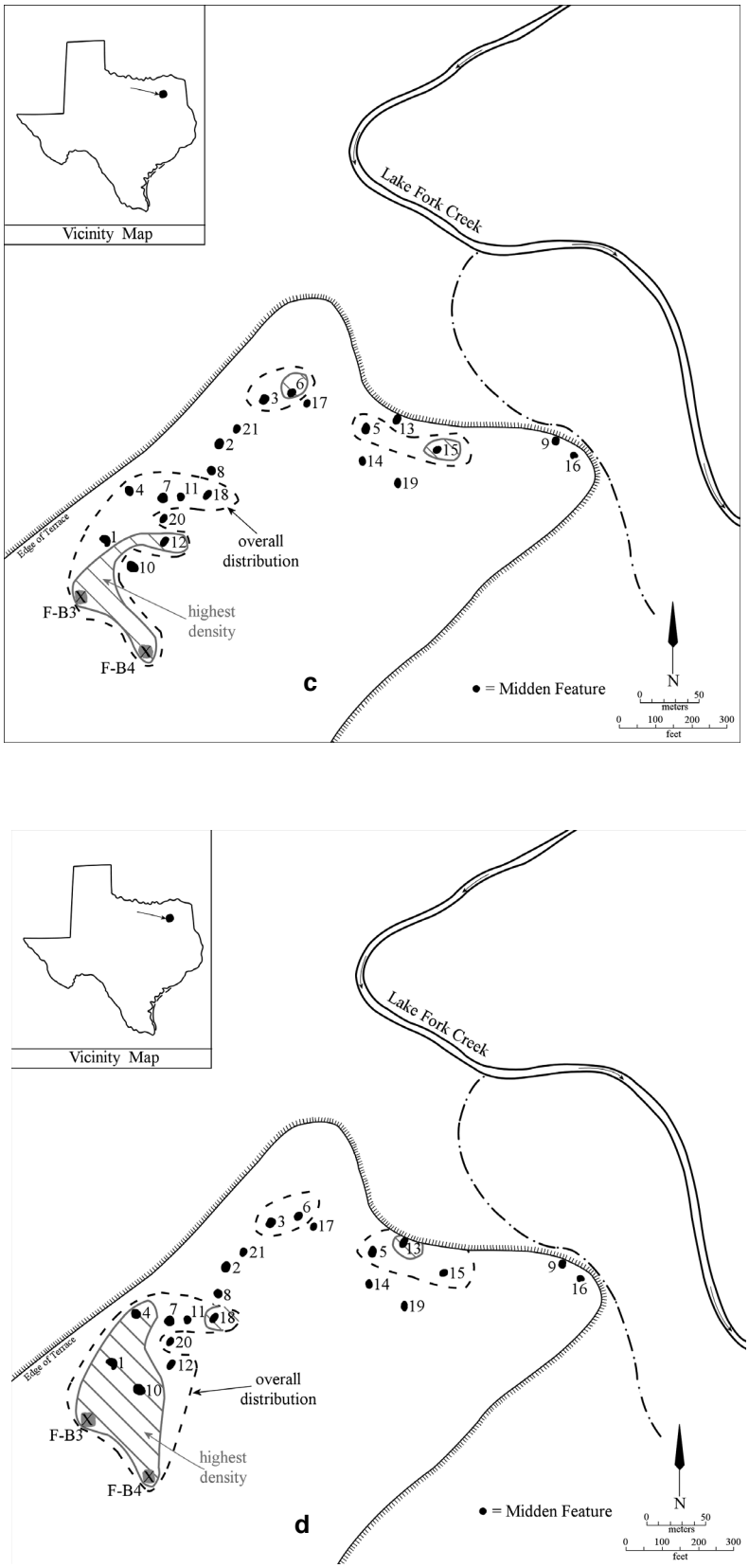

Figure 4. Distribution and highest percentages of selected ceramic types and groups at the Gilbert site: c, brushed pottery; d, bone-tempered sherds.

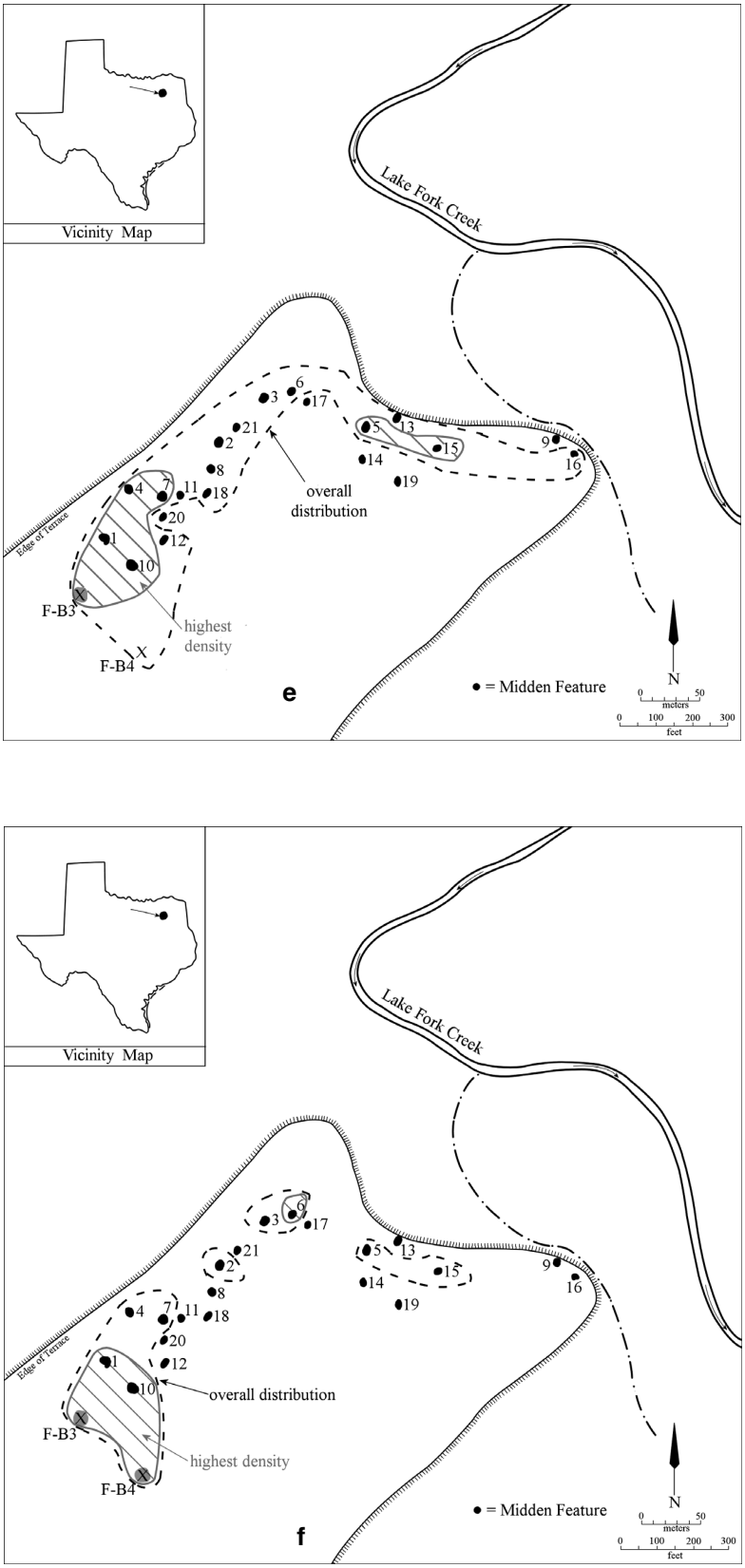

Figure 4. Distribution and highest percentages of selected ceramic types and groups at the Gilbert site: e, shell-tempered sherds; f, grog-tempered sherds.

Table 4. Plain sherds from features (see Story et al. 1967:Tables 7 and 8).

Fea. No.	WP	WW	shell	shell-bone	bone	grog	grog-shell	SP
1	1	–	83	–	97	42	–	27
2	–	–	11	–	–	1	–	3
3	91	120	148	–	108	6	1	48
4	–	3	46	1	56	1	1	7
5	1	37	77	–	24	6	–	5
6	1	2	35	–	16	18	14	24
7	16	–	44	2	14	1	–	1
10	–	–	2	–	3	4	–	1
11	–	2	–	–	1	–	–	2
12	–	–	4	–	1	–	–	–
13	–	–	3	–	2	–	–	–
15	1	–	12	2	5	1	–	2
16	–	–	16	–	16	–	–	–
18	–	–	1	–	58	–	–	–
20	–	–	–	–	–	–	–	1
Totals	111	164	482	5	401	80	16	121

WP=Womack Plain; WW=Womack ware; SP=sandy paste

tempered, bone-tempered, grog-tempered, and fine sandy paste as the principal temper-paste groups, are the same as the temper-paste groups from the other middens (see Table 4). The F-B3 midden ceramics are notable for the high proportions of shell-, bone-, and grog-tempered sherds, and the abundance of brushed jar sherds, while F-B4 has high proportions of bone-tempered and fine sandy paste sherds, along with a very high proportion of brushed jar sherds; Natchitoches Engraved variant sherds are also well represented in this midden.

The predominance of Caddo fine ware, utility ware, and plain ware vessel sherds in the various midden features at the Gilbert site strongly suggest that the site was occupied by Caddo peoples that made, used, and broke ceramic vessels during the course of the mid-18th century occupation. Instrumental neutron activation analysis of three sherds from the Gilbert site (Perttula and Ferguson 2010:Figure 3) indicate that they came from vessels made with local sub-region 5 clays in the upper Sabine River basin. This finding leads to the presumption that the sherds are from vessels that were made from local upper Sabine River basin clays. Does this presumption of local manufacture support the conclusion that the vessel sherds found at the Gilbert site were made by Caddo peoples rather than non-Caddo Wichita-Tawakoni or Kichai groups? There are several lines of ceramic evidence that lend credence to the idea that the Gilbert site ceramics are the product of a Caddo occupation, but a contemporaneous occupation by two or more Caddo groups.

First, since the 1960s Womack Engraved has been viewed as a material culture trait diagnostic of the Norteno focus, and has been specifically linked with 18th century Norteno groups living on the southern Plains. These groups are all considered to be non-southern Caddo groups but Wichita-Tawakoni or Kichai in cultural affiliation (Duffield and Jelks 1961:80; Harris et al. 1965:360; Jelks 1967:244). The relatively frequent occurrence of inverted rim engraved vessels from a number of late 17th century Caddo sites in

the Sabine, Sulphur, and Little Cypress drainage basins in East Texas (see Perttula 2007:137-141) provide evidence of protohistoric settlement in these areas. They also provide stylistic evidence for the development of early 18th century Womack Engraved vessels out of a late 17th century Titus phase stylistic tradition that included distinctive red-slipped Taylor Engraved and Ripley Engraved inverted rim vessels. Perttula (2007:141-142) has stated the key stylistic and formal relationships between these Caddo ceramic types as including the following:

(a) development of inverted rim carinated bowls;

(b) earlier use of red-slipping on this vessel form; red-slipping is a common decorative element in upper Sabine and upper Big Cypress Titus phase ceramic vessel assemblages;

(c) later use of shell-tempering in this vessel form;

(d) ticked engraved lines, either on scrolls or semi-circles; and

(e) hooked arm scrolls, including the meandering scroll.

Later changes and the full expression of the stylistic character of Womack Engraved included adding cross-hatched border areas or scroll dividers (the earlier inverted rim forms have hatched triangular scroll dividers) and the development of large cross-hatched engraved triangles. These occur either pendant from the vessel rim or pendant from the central engraved line running through the middle of the rim scroll.

These intimate stylistic relationships between Taylor Engraved and Womack Engraved inverted rim vessels dating from ca. A.D. 1670-1730 arising out of a Titus phase ceramic tradition should dispel the notion that Womack Engraved is a Wichita-Tawakoni or Norteno ceramic type. The occurrence of Womack Engraved vessels and their ancestral stylistic forms (i.e., Taylor Engraved inverted rim engraved carinated bowls, Womack Engraved, *var. Gum Creek* (Perttula and Nelson 2007:Figure 2f), and some red-slipped Ripley Engraved vessels) in burials on late Titus phase sites that lack trade goods indicate that certain Caddo groups still lived in the Sulphur, Sabine, and Little Cypress Creek basins after much of the region had been abandoned around ca. A.D. 1670. These Caddo groups developed this distinctive vessel form and its constellation of stylistic elements and motifs, which reached their full stylistic maturation by the early 18th century at the Womack site on the Red River and by the middle to late 18th century at the Gilbert and Pearson sites in the upper Sabine River basin.

Second, Womack Engraved vessels have been recovered from Fort Coffee phase sites in the Arkansas River basin of eastern Oklahoma (Rogers 2006:Table 2). Baugh (2009:Figure 1) considers Fort Coffee phase sites to represent a protohistoric Wichita group. Rogers (2006:24) indicates that the Womack Engraved in these sites are Caddo trade wares from the Red River basin to the south. Since the Fort Coffee phase sites appear to have been occupied until only ca. A.D. 1660, it is probable that the Womack Engraved vessels found there—if they are indeed stylistically the same as Womack Engraved vessels found on East Texas Caddo sites—must date at the very end of the Fort Coffee phase settlement of this locale. In any case, there does not appear to be any association between this protohistoric Wichita group and the manufacture of Womack Engraved. Instead, Womack Engraved was already being manufactured by that time among several Caddo groups in the upper Sabine River and Sulphur River basins.

Finally, it is worth considering again the suggestion made by Story et al. (1967:186) that the ceramics from the Gilbert site are "too stylistically and technologically diverse to represent only one locally-produced ceramic complex." When we consider the co-associations between certain kinds of fine wares, utility wares, and plain wares and the use of specific temper-paste groups at the site—from contemporaneous midden feature contexts—this is a sound conclusion. Looking at the kinds of ceramics that were made by Caddo groups in the years and decades preceding the occupation of the Gilbert site, it is possible to venture suggestions about the provenance of the different ceramic wares. The shell-tempered vessel

sherds at the site, with the exception perhaps of the Natchitoches Engraved sherds that probably have a Northwest Louisiana provenance (Gregory and Avery 2007:Table 1), as well as the shell-tempered Emory Punctated-Incised vessel sherds, must have originated from a Red River Caddo group, probably one living on the middle Red River (Perttula et al. 2011:Figure 2), as this is the only part of East Texas where Caddo groups made and used shell-tempered ceramics in any quantity before the early 18th century. Likewise, the bone-tempered and brushed pottery sherds must have originated among Caddo groups in the Neches-Angelina, Sabine, and/or Big Cypress river basins in East Texas who had been making such utility ware jars since the 14th century A.D. I have already linked the manufacture and use of Womack Engraved to protohistoric Caddo sites and contexts in the upper Sabine and Sulphur river basins, where much of the ceramics were made using grog-temper, an ubiquitous part of Caddo ceramic manufacturing traditions across the region. The decorated and plain vessels with a fine sandy paste at the Gilbert site may be a local and mid-18th century ceramic innovation, as non-tempered sandy paste vessels are rare in prehistoric and protohistoric contexts in East Texas Caddo ceramic assemblages.

In sum, the sherds from decorated and plain vessels at the Gilbert site are considered to have been made by different Caddo groups that lived together at the site in the mid-18th century. The Wichita, Tawakoni, or Kichai have no demonstrated ethnic or archaeological affiliations with the distinctive ceramic wares found at the site.

The Caddo groups that lived at the site in the mid-18th century were originally from the middle Red River and parts of the upper Sabine, Sulphur, and Big Cypress stream basins in east Texas. They brought with them their own ceramic traditions, traditions in the making, decorating, and use of fine wares, utility wares, and plain ware vessels that had been developed over several centuries in prehistoric and protohistoric times. These traditions were maintained during the Gilbert site occupation, being found together in spatial clusters in most, if not all, of the midden features that have been investigated there. The co-association of these ceramic traditions, as well as the manufacture of sandy paste decorated and plain wares that may represent the development of a third distinctive and local ceramic tradition, suggest that the Caddo groups co-existed at the site, but had not yet ethnically coalesced as one distinctive and new Caddo group.

ACKNOWLEDGMENTS

I wish to thank Jay Blaine for the opportunity to analyze the sherds from his Gilbert site collections, and for providing me with information about the F-B3 and F-B4 middens. Lance Trask drafted the Figure 1 and 4 site maps and took the Figure 2 and 3 photographs.

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APPENDIX 1, DETAILED ANALYSIS OF SHERDS FROM F-B3 AND F-B4

Lot No.	Sherd Type	Temper/ Paste	FC	ST	Th (mm)	Comments
F-B3						
8	body	fine bone	D	I SM	5.4	parallel brushed
9	body	fine bone	L	I/E B	6.8	plain
21	rim	fine bone	B	–	5.4	plain; direct rim and flat, ext. folded lip
25	body	fine bone	B	–	6.5	plain
35	body	fine bone	B	E B	4.7	plain
37	body	fine bone	G	–	6.9	plain
39	rim	fine bone	F	E SM	8.9	plain; inverted rim and rounded lip; interior thickened; short rim
27	body	fine bone-hematite	G	E SM	5.5	plain
28	body	bone	F	I SM	5.5	parallel brushed
28	body	bone	G	–	5.6	opposed brushed
37	body	bone	F	–	6.9	parallel brushed
24	body	bone-hematite	G	I SM	6.9	plain
24	body	bone-hematite	B	–	7.7	parallel brushed
25	body	bone-hematite	F	–	7.8	parallel brushed
29	body	bone-hematite	B	–	N/A	plain
29	rim	bone-hematite	F	–	6.3	plain; direct rim and rounded lip
29	body	bone-hematite	F	–	7.0	parallel brushed

Lot No.	Sherd Type	Temper/ Paste	FC	ST	Th (mm)	Comments
11	body	grog	G	–	7.3	plain
24	body	grog	F	I SM	7.3	plain
25	body	grog	G	I/E B	7.0	plain
25	body	grog	F	E B	7.3	plain; possible black slip
27	body	grog	K	E B	6.4	plain
27	body	grog	G	E SM	6.6	plain
28	body	grog	C	I/E B	6.8	plain
25	body	grog-hematite	A	–	8.4	plain
6	body	shell	B	I SM	6.3	two closely-spaced curvilinear incised lines
20	rim	shell	B	I SM	7.0	plain; rounded lip
24	body	shell	B	I/E SM	7.3	parallel and opposed incised lines
24	lower rim and body	shell	B	–	7.2	plain
24	body	shell	B	–	6.9	plain
24	rim	shell	B	–	7.6	plain; everted rim and rounded lip
24	body	shell	B	–	7.7	plain
24	body	shell	B	–	7.1	plain
25	body	shell	A	–	7.4	plain
25	body	shell	B	–	6.1	plain
25	base	shell	B	E SM	8.3	plain
25	body	shell	B	–	6.8	two closely-spaced straight incised lines
27	rim	shell	B	–	6.9	horizontal grooved; direct rim and rounded lip
28	body	shell	B	I SM	6.1	opposed curvilinear incised lines; Emory Punctated Incised

Lot No.	Sherd Type	Temper/ Paste	FC	ST	Th (mm)	Comments
28	rim	shell	B	I SM	8.3	two rows of punctations below the lip; Emory Punctated-Incised
29	lower rim and body	shell	B	–	8.4	plain; collared rim
29	body	shell	B	–	7.1	plain
29	body	shell	B	–	6.5	plain
25	body	fine SP	G	I/E B	6.7	engraved pendant triangles; cf. Womack Engraved
30	body	fine SP	C	I/E SM	5.9	plain
F-B4						
4	body	fine bone	G	E SM	4.8	plain
4	body	fine bone	H	–	4.9	parallel brushed
5	body	fine bone	H	I SM	5.9	parallel brushed
9	body	fine bone	B	I SM	5.9	parallel brushed
11	body	fine bone	F	–	5.1	parallel brushed
12	body	fine bone	H	I SM	6.5	parallel brushed
17	base	fine bone	B	–	9.2	concave base, plain
23	body	fine bone	B	–	5.7	parallel brushed
25	body	fine bone	B	I/E SM	5.5	plain
26	body	fine bone	B	–	6.4	plain
26	lower rim and body	fine bone	B	I SM	6.9	tool punctated row
30	body	fine bone	B	–	5.7	parallel brushed
38	body	fine bone	H	I SM	5.4	parallel brushed
39	body	fine bone	H	–	6.5	parallel brushed
42	body	fine bone	H	I SM	5.6	parallel brushed
46	body	fine bone	F	–	6.2	parallel brushed

Lot No.	Sherd Type	Temper/ Paste	FC	ST	Th (mm)	Comments
55	body	fine bone	H	I SM	6.0	horizontal and over-lapping brushed
57	body	fine bone	H	I SM	7.2	plain
65	rim	fine bone	B	I SM	5.5	plain; everted rim and rounded, ext. folded lip
67	body	fine bone	G	I SM	6.9	parallel brushed
69	body	fine bone	B	I SM	6.6	parallel brushed
72	body	fine bone	H	I SM	4.9	parallel brushed
74	body	fine bone	B	I SM	6.2	parallel brushed
30	body	bone	B	–	6.0	plain
77	body	bone-hematite	A	–	6.4	plain
54	body	bone-shell	B	I/E B	5.6	opposed engraved lines
9	rim	grog	B	I/E B	6.5	cross-hatched engraved; Womack Engraved; direct rim and rounded lip
13	body	grog	B	I SM	6.1	parallel brushed
14	body	grog	B	–	5.5	plain
16	rim	grog	F	I/E B	4.1	int./ext. red-slipped; direct rim and rounded lip
79	body	grog	B	I SM	5.2	parallel brushed
63	body	grog-bone	G	I SM	6.7	plain
47	body	hemat.-fine SP	F	I/E B	5.2	hatched engraved triangle
57	body	hemat-fine SP	H	E B/ I SM	6.8	opposed engraved lines
59	body	hemat.-fine SP	F	E B	5.3	curvilinear and opposed engraved lines

Lot No.	Sherd Type	Temper/ Paste	FC	ST	Th (mm)	Comments
70	body	hemat.-fine SP	F	–	5.6	plain
73	body	hemat.-fine SP	F	E B	7.5	horizontal engraved and cross-hatched brackets
73	body	hemat.-fine SP	F	E B	6.6	parallel lines and narrow hatched zone; brown slip
2	body	fine SP	B	I/E SM	7.7	cross-hatched engraved zone, Womack Engraved
4	body	fine SP	E	I SM	5.4	parallel brushed
24	body	fine SP	–	E B	–	plain
42	body	fine SP	H	I/E B	7.4	straight and curvi-linear engraved lines
70	body	fine SP	F	–	6.0	cross-hatched engraved zone
77	body	fine SP	B	I/E SM	7.9	plain
80	body	fine SP	H	E B	6.0	horizontal and diagonal engraved lines and hatched triangles
80	body	fine SP	F	E SM	6.2	engraved scroll and hatched triangle
16	rim	shell	F	–	6.9	plain; inverted rim and rounded lip
20	body	shell	K	–	6.7	straight incised line
20	body	shell	E	–	6.5	plain
56	body	shell	B	I/E B	5.6	plain
68	body	shell	B	I B	3.6	plain

hemat.=hematite; SP=sandy paste; Firing conditions (after Teltser 1993:Figure 2a-h; Perttula 2005:Figure 5-30i-l): A=fired and cooled in an oxidizing environment; B=fired and cooled in a reducing environment; C-E=incompletely oxidized; F-H=fired in a reducing environment and cooled in the open air; K-L=sooted, smudged, or refired; I=interior; E=exterior; SM=smoothed; B=burnished

Trends in Archaic and Woodland Period Use of the Middle Sabine River Basin Based on Dart Point Proportions

Timothy K. Perttula and William L. Young

INTRODUCTION

In this article, we use the varying proportions of a large sample of Archaic and Woodland period dart points to explore trends in settlement and occupational intensity from ca. 10,000 to 1200 years B.P. in the Pineywoods and Post Oak Savannah of East Texas (Figure 1). These darts were collected from sites in Gregg, Harrison, Rusk, and Smith counties, Texas, mainly on sites in the middle reaches of the Sabine River basin.

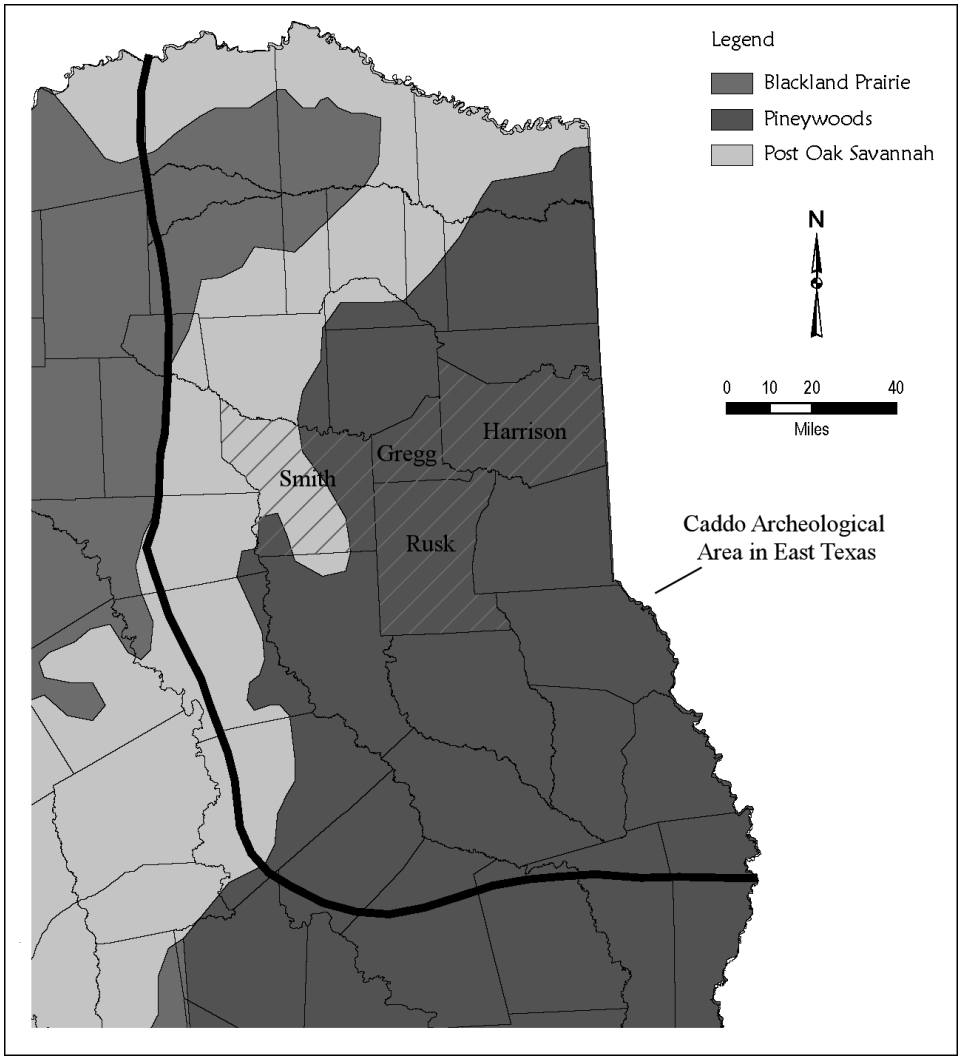

Figure 1. Location of Gregg, Harrison, Rusk and Smith counties in the East Texas Pineywoods.

THE DART POINT COLLECTION

The more than 1280 dart points examined, categorized, and typologically identified for this study are from the Buddy Calvin Jones collection at the Gregg County Historical Museum in Longview, Texas. They are currently in about 20 frames (Figures 2 and 3). These points were collected from surface contexts by Buddy Calvin Jones in the 1950s and 1960s, and recorded by site and/or county proveniences.

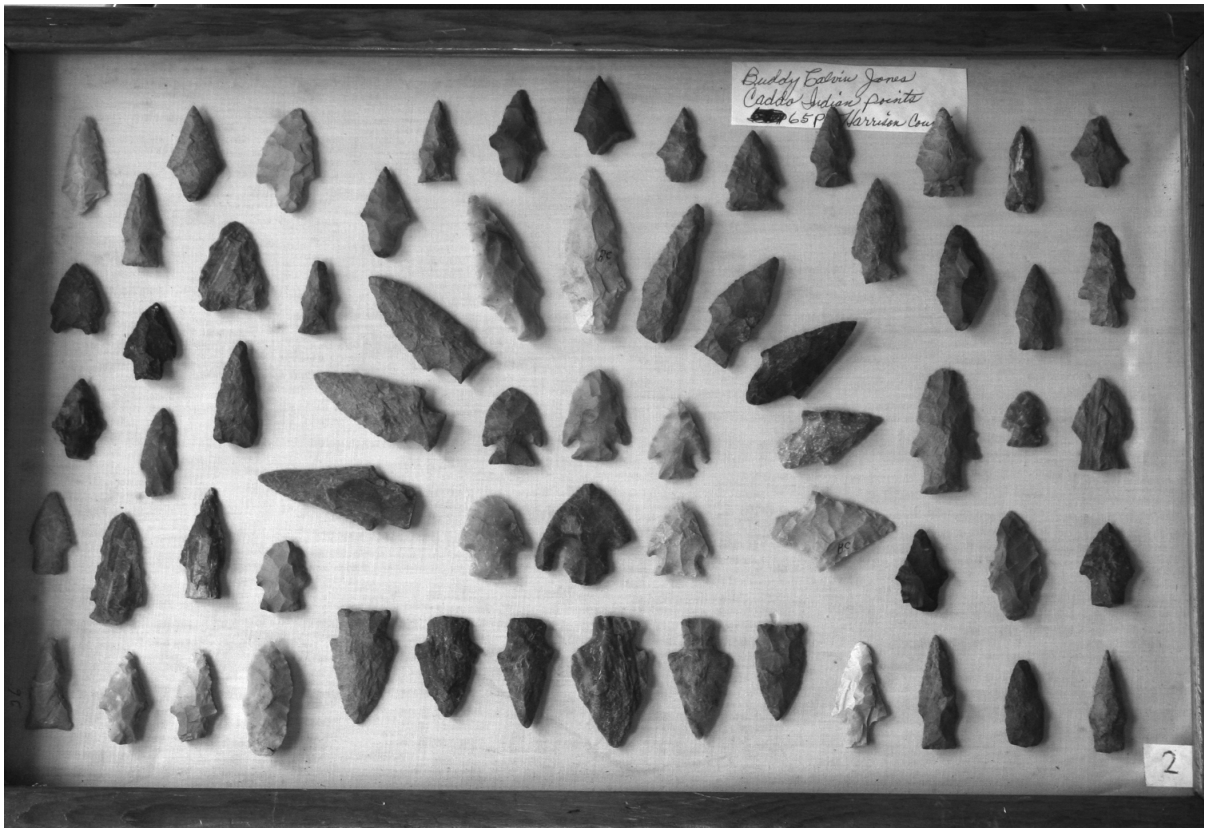

Figure 2. Buddy Calvin Jones Collection, Frame 2, Harrison County. Image reproduced courtesy of the Gregg County Historical Museum.

POINT TYPES AND PERIOD ASSIGNMENTS

For our purposes, the Archaic period in East Texas is defined as lasting from 10,000 years B.P. to approximately 2500 years B.P., with the Early Archaic dating from ca. 10,000-8000 years B.P. (8050-6050 B.C.), the Middle Archaic ranging from 8000-5000 years B.P. (6050-3050 B.C.), and the Late Archaic dating from 5000-2500 years B.P. (3050-550 B.C.). The Woodland period ranges from 2500-1150 years B.P. (550 B.C. to A.D. 800).

Our proposed temporal ordering of dart points in the East Texas Archaic and Woodland periods draws first upon the few available absolute dates from East Texas on Archaic sites, as well as the known sequences of dart points in surrounding regions, such as Southwest Arkansas (Schambach 1998; Trubitt 2009), Northwest and Northern Louisiana (Girard 2000; Girard et al. 2011; Rees 2010; Saunders 2010), the Missouri Ozarks (Ray et al. 2009), and Central Texas (Collins 1998; Collins et al. 2011), and chronological periods of use offered by Turner and Hester (1999). A recent cladistics study (see O'Brien and Lyman 2003; Lipo et al. 2006) of 93 Texas dart point types that has plotted the statistical affinities among the various types (Carpenter and Paquin 2010:158 and Figures 2 and 3) was also relied upon for estimating temporal ages of dart

Figure 3. Buddy Calvin Jones Collection, Frame 1, Gregg and Smith Counties. Image reproduced courtesy of the Gregg County Historical Museum.

points. From these relationships, Carpenter and Paquin (2010:Figure 4) proposed hypothetical relationships between dart point types "based on overlap in temporal, spatial, and formal attributes."

Based on these various lines of evidence, as well as the suggested chronological sequences for East Texas dart points proposed by Story (1990:Figure 32) and Thurmond (1990:Table 8), the Early Archaic dart point sequence begins with Dalton and San Patrice points, although both point types were first made sometime prior to 10,000 years B.P. (Koldehoff and Walthall 2009: Ray et al. 2009) and are often considered to be diagnostic of the Late Paleoindian period in the broader region. Recent radiocarbon dates from the Big Eddy site in southwest Missouri indicates both points were made and used until ca. 9800 years B.P. (Ray et al. 2009:160), in the early years of the Late Paleoindian-Early Archaic technological, subsistence, and settlement/mobility transition. Later Early Archaic points (ca. 9800-9000 years B.P.) include the Breckenridge, Scottsbluff, and Keithville types (Webb 2000:4), as well as later Pelican, Graham Cave, and Rice Lobed points (ca. 8500-8000 years B.P.).

Proposed early Middle Archaic points in East Texas include the Hidden Valley and Kirk types, as well as the Palmer type, although these are points that are not particularly common in East Texas dart point assemblages (e.g., Jones 1957; Rogers and Perttula 2004; Furman and Amick 2006; Turner 2006:Table 7). Between 6500-5000 years B.P., Middle Archaic points are suggested to include the Cossatot, Johnson, Jakie Stemmed, White River side-notched points (sometimes referred to as Big Sandy points, see Ray and Lopinot 2003), Morrill, Bell and Andice (or Calf Creek), and the distinctive blade-notched Evans point.

In the early part of the Late Archaic period (ca. 5000-4000 years B.P.), East Texas dart point assemblages may be expected to include Bulverde, Carrollton, Wells, Williams, and Trinity types, as well as Palmillas and Neches River. Dart points posited to date primarily to the latter part of the Late Archaic (ca. 3800-2500 years B.P.) include Yarbrough (although the dating evidence for this point type is contradictory on East Texas sites), Pontchartrain, Ellis, and Marshall types, as well as Dawson, Epps, and Motley types. The ubiquitous contracting stem Gary point appears to have been made and used beginning at the end of the Late Archaic (cf. Schambach 1998), but fully flourished as a dart point/knife throughout the later Woodland period, along with the Kent dart point type.

PERIODS AND INTENSITY OF USE

Assuming that the 1280+ dart points studied in the Buddy Calvin Jones collection constitute a representative sample of the kind and proportion of dart points that can be found on Archaic and Woodland period sites in the East Texas Pineywoods and Post Oak Savannah, it is clear that dart points of Late Archaic and Woodland period age dominate the sample (Figure 4). Points dating to these two periods comprise more than 83% of the large collection.

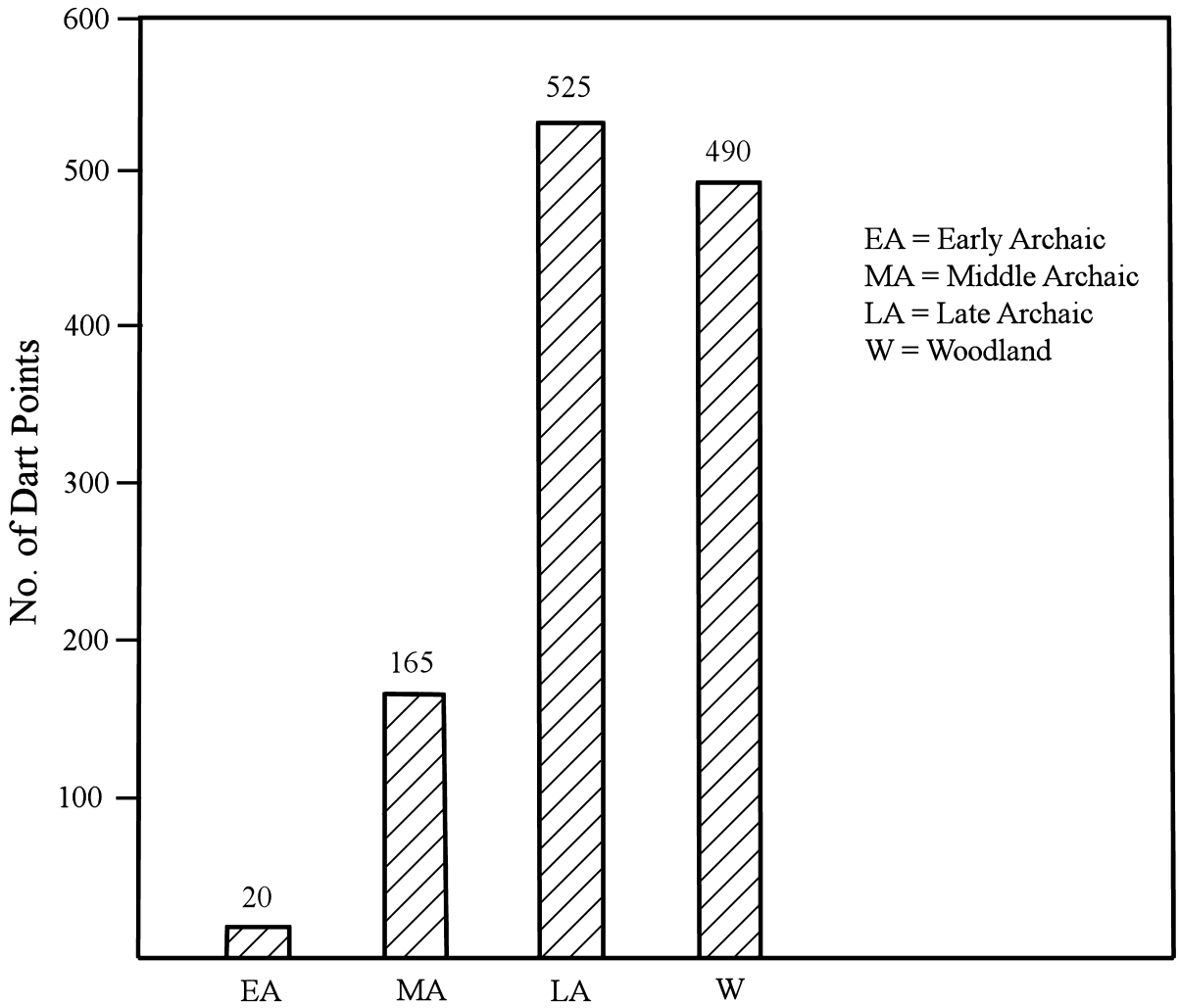

Figure 4. The Number of Dart Points Identified by Archaic and Woodland Time Periods.

The Early Archaic points represent less than 2% of the dart point collection. The principal dart points for this period include Dalton, San Patrice, and Scottsbluff. Middle Archaic dart points account for about 14% of the Jones framed dart point collection (see Figure 4). The best represented Middle Archaic dart point types in the collection include Morrill (40%), Cossatot (20%), Calf Creek/Bell/Andice (12%), and White River (8%). This suggests the main period of Middle Archaic settlement and use in this part of the East Texas Pineywoods and Post Oak Savannah took place after 6500 years B.P.

Late Archaic dart points are particularly well represented in the Jones framed dart point collection (see Figure 4). They represent almost 44% of the entire sample. The most common Late Archaic dart points are Yarbrough (34%), Wells (18%), Ellis (13%), Williams (8%), and Edgewood (6.9%). Based on the temporal considerations discussed above, the range of common Late Archaic dart points suggests a continuous use of the East Texas Pineywoods and Post Oak Savannah throughout this period.

Finally, Woodland period points represent 41% of the studied dart point sample (Figure 4). These points include Gary (76%) and Kent (24%) dart points in the Jones collection.

If we convert the number of dart points from each Archaic period as well as the Woodland period to the number of dart points per century in the sample, we have an index that measures settlement use and intensity for each of the periods compared to one another (Figure 5). This index clearly demonstrates that the most intensive use of the East Texas Pineywoods and Post Oak Savannah as measured by projectile point numbers was by Woodland and Late Archaic hunter-gatherers. In fact, the intensity of use increased substantially between the Late Archaic and the Woodland period, suggesting that population size (and numbers of sites) continued to increase in the region after 2500 years B.P.

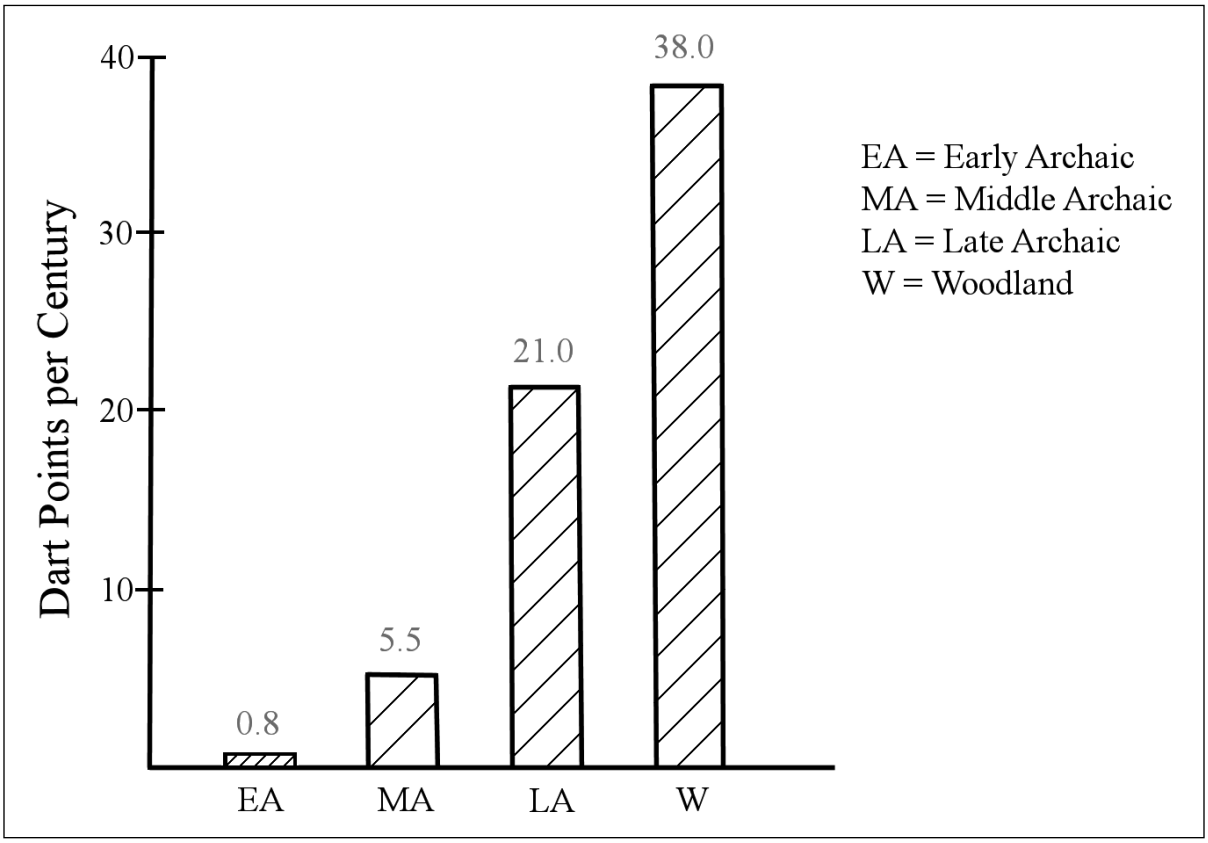

Figure 5. Dart Points per Century in the Archaic and Woodland Time Periods.

The number and types of Early Archaic and Middle Archaic dart points/per century in our sample testify to a light use of the landscape during the 8000-10,000 years B.P. period, as well as from ca. 6500-8000 years B.P. (see Figure 5), with more use after 6500 years B.P. The number of Late Archaic dart points per century increased almost 400% over that of the Middle Archaic period as a whole.

We suspect that these broad trends in the use of the East Texas Pineywoods and Post Oak Savannah by hunter-gatherer groups over a 7500 year period, as tracked by projectile point frequencies and proportions per century in our dart point sample, reflect cultural and demographic changes and technological adjustments and adaptations associated with major climatic changes in the region, particularly in temperature and available precipitation, just as they do in other parts of North America (e.g. Collins et al. 2011; Munoz et al. 2010). By the onset of the Late Archaic, changes in the distribution of prairie and forest areas, due to generally wetter conditions after ca. 5000 years B.P. than was the case during the preceding Middle Archaic period, were much as they are in modern times. The known distribution, availability, and predictability of food resources in the region at this time apparently led to a substantial increase in American Indian population sizes that continued through the Woodland period and into the post-A.D. 800 Caddo periods.

ACKNOWLEDGEMENTS

Perttula would like to acknowledge the yeoman services provided by Bill Young, now deceased, in sorting the projectile point types from about 20 frames of dart points in the Buddy Jones collection. Perttula had initially requested that Bill take a look at the frames, and help with the identification of any Early Archaic points on them, but Bill was determined to typologically identify ***all*** the points on the frame, no matter how many Gary points were on each of them. He doggedly made his way through the frames, and he was working on them shortly before his death.

We would also like to acknowledge the assistance of Patti Haskins of the Gregg County Historical Museum for providing digital images of the dart point frames. Patti also provided permission for us to use two of the images in this article.

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A Hematite Cone from Smith County, Texas

Mark Walters

INTRODUCTION

Hematite (Fe2O3) is a mineral, its most important usage being iron ore (Kraus et al. 1951). In the United States, hematite occurs over a large region with a major concentration in the central part of the country (Figure 1). Hematite has varying degrees of hardness and colors. Hematite gives rocks their red color and characteristic "red-streak." Soft, earthy (red ocher) forms were prized as paints. Hard, compact forms with considerable iron content were valued as tools, because of their strength as well as susceptibly to a high and beautiful polish. Certain forms of hematite are used in making jewelry. During prehistoric times, hematite was fashioned and used in a wide variety of forms including celts, axes, pendants, plummets, pestles, discoidals, cup stones (nutting stones), manos, and cones (Figure 2). The high degree of workmanship on some of these tools, and the absence of use-damage, suggest that some of them may have had uses that were other than merely functional.

This study concerns a hematite cone that was found in eastern Smith County, Texas along Prairie Creek (41SM449). I also discuss a possible unfinished hematite cone found at the Brieger Point site (41CP42) at Lake Bob Sandlin. Prehistoric hematite objects are not uncommon in East Texas, the most common forms being grooved axes (Turner 2006), celts, nutting stones, and manos. More uncommon are objects such as pendants and plummets. The hematite cone from the Prairie Creek site and the possible hematite cone from the Lake Bob Sandlin area are the only examples of hematite cones that I am aware of from the East Texas area. Hematite cones are more plentiful in the Ohio valley (Moorehead 1912). Their function is unknown, although it has been surmised that they may have been gaming pieces or talismans (Figure 3).

PRAIRIE CREEK (41SM449) HEMATITE CONE

The Prairie Creek cone was found on the surface of a sandy upland setting overlooking Prairie Creek (Figure 4). Prairie Creek flows 12 miles east to the Sabine River. The only other prehistoric artifact noted at the site was a ferruginous sandstone nutting stone. The nutting stone was roughly formed with a shallow circular depression on the top and bottom. There are examples of hematite cup stones (nutting stones) and manos with highly polished surfaces from a site only a couple miles away (Walters 2006). It is not known if the hematite cone and nutting stone at the Prairie Creek site (41SM449) were associated with each other. The nutting stones are fairly ubiquitous in this area, with a long history of use from Archaic through Caddo time periods.

The Prairie Creek cone is a dark reddish-brown (5YR2.5/2) color and highly polished. The object is shaped like a "Hershey's Kiss" (Figure 5). The base is flat and almost a perfect circle, measuring 60.5 mm in diameter from top to bottom and 60.2 mm in diameter from side to side (Figure 6a). In profile, the cone measures 18.2 mm at the nipple. The cone weighs 79.9 g. While highly polished, the Prairie Creek cone exhibits small hair-line cracks leading to a process termed exfoliation (Figure 6b). This process is common on objects/tools made from hematite and is explained in detail by Turner (2006) in a study of hematite axes.

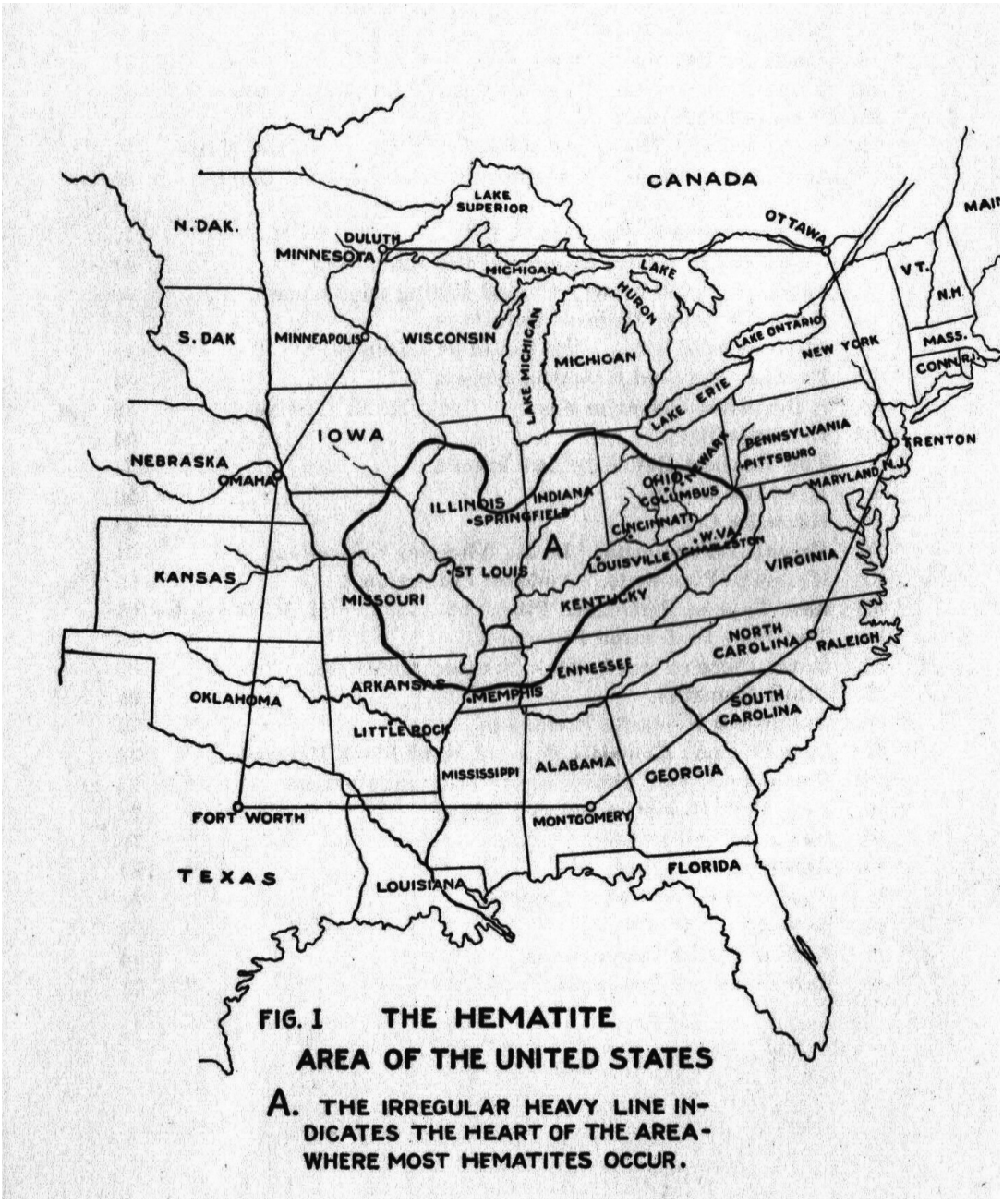

Figure 1. Moorehead's (1912) map of the hematite area.

BRIEGER POINT (41CP42) CONE FROM LAKE BOB SANDLIN

The Brieger Point cone was found on the surface of a site that has a long history of prehistoric occupation, but there are substantial Late Archaic and Woodland period components (Nelson and Perttula 2003:18-20). The Brieger Point cone is a reddish-brown (5YR4/4) hematite with patches of dark reddish-brown (5YR3/4) cortex. One surface is convex with numerous flake scars (Figure 7a). The thickness in profile is 15.9 mm. The opposite surface is relatively flat and smooth with few flake scars around the edges to form a circle (Figure 7b). This indicates that the maker of the cone chose a piece of hematite of suitable size and shape to begin the process, then worked it down to a preform that had the desired object

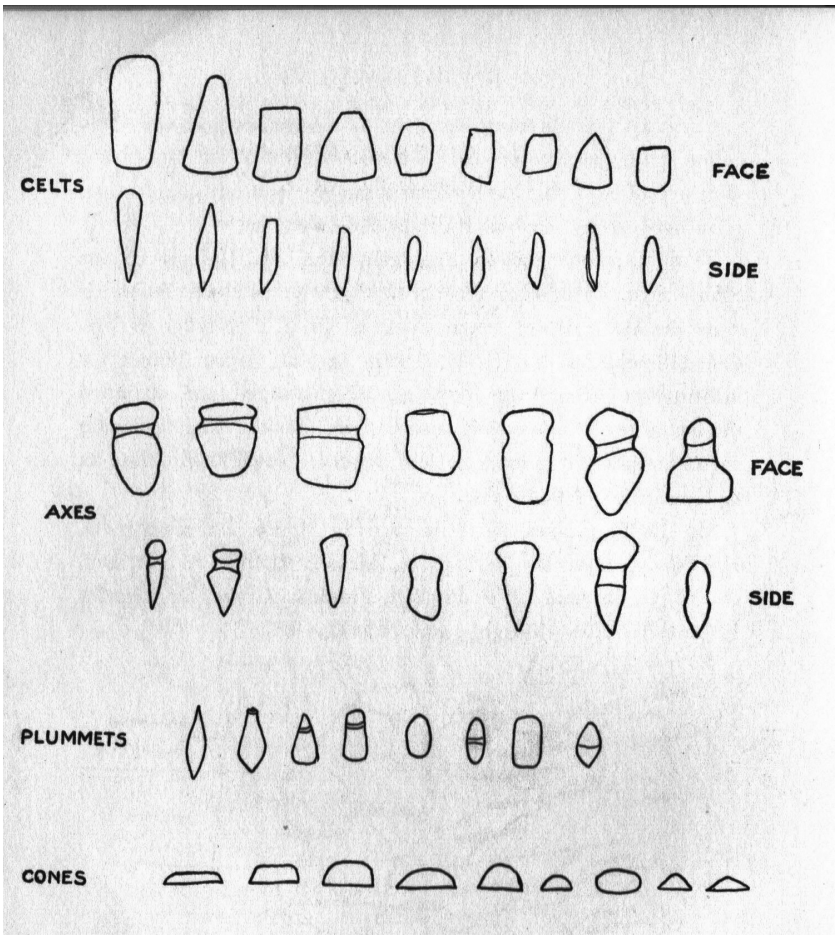

Figure 2. Outlines of hematite types.

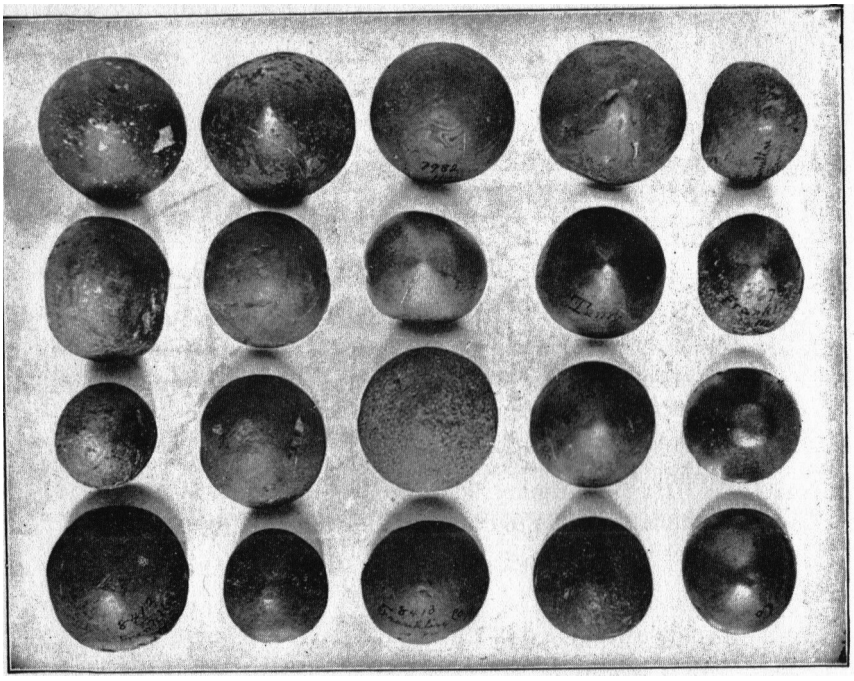

Figure 3. Hematite cones.

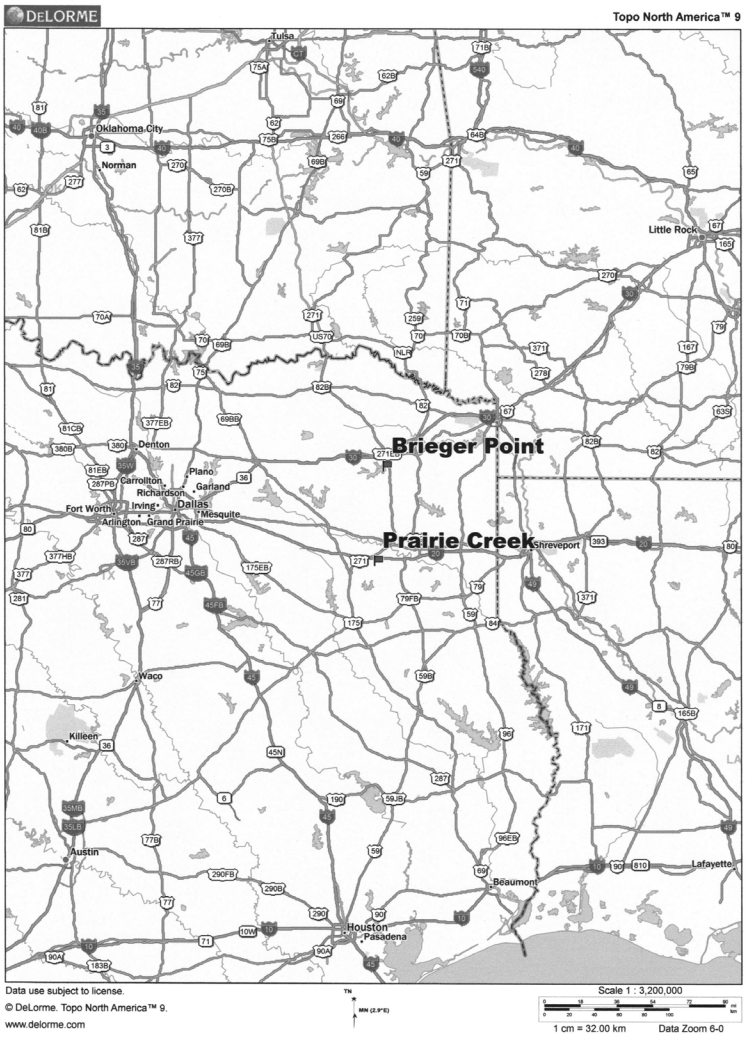

Figure 4. Location of Prairie Creek and Brieger Point sites.

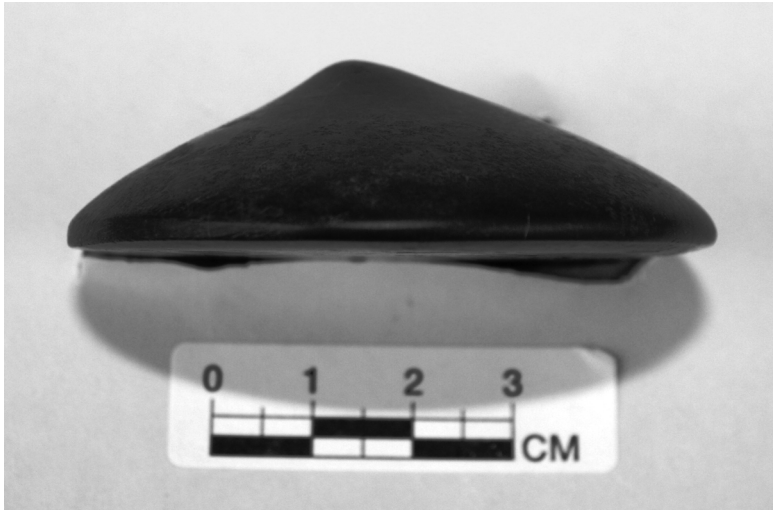

Figure 5. Profile view of Prairie Creek cone.

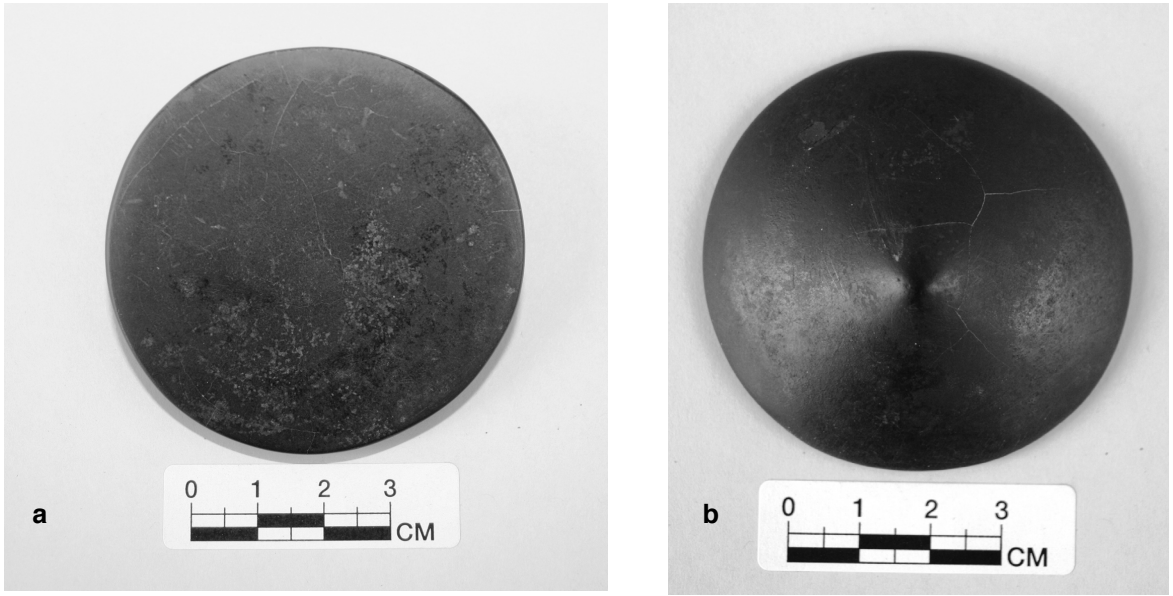

Figure 6. Prairie Creek cone: a, bottom view; b, top view.

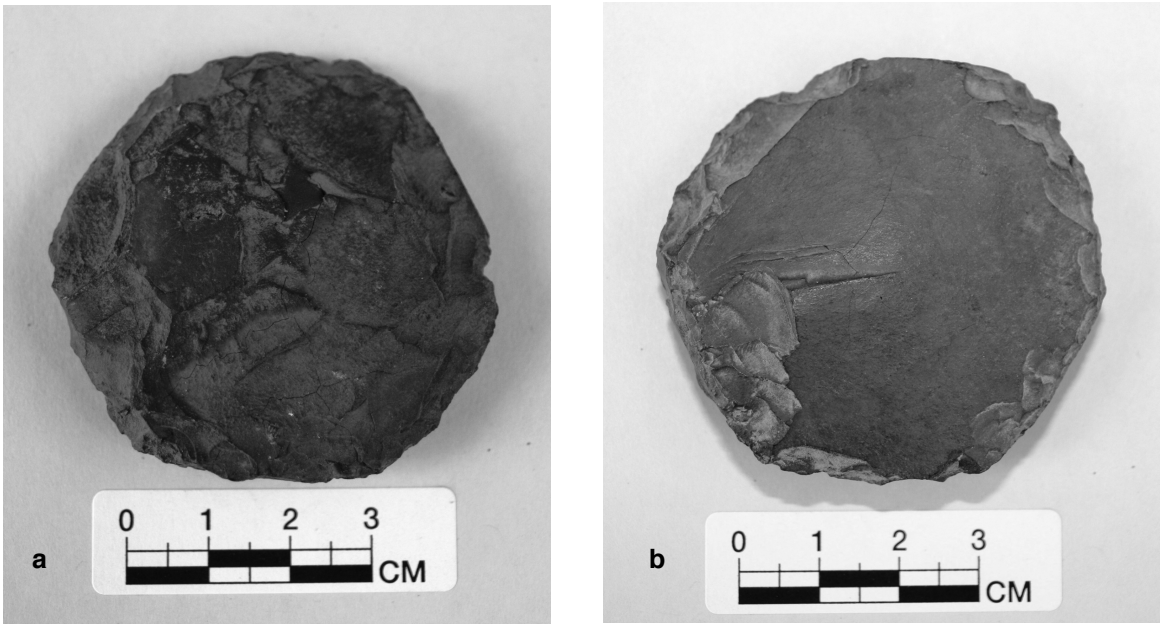

Figure 7. Brieger Point cone: a, top view; b, bottom view.

form. The cone is 54.3 mm in diameter from top to bottom and 50.8 mm diameter from side to side. It is uncertain why the object was never completed.

CONCLUSIONS

A hematite cone object was found in Smith County, Texas, and a second possible cone (preform) was recorded at the Brieger Point site in the Big Cypress Creek basin. Heretofore, there has been no record of hematite cones having been found in East Texas, although polished hematite grooved axes, celts, pendants, nutting stones, and manos are well-documented in the region. Hematite cones, as well as other hematite objects, seem to be more prevalent in the central portions of the United States where raw materials are more common. Unfortunately, there is no way to date the two examples cited in this article or a way at present to associate them temporally or culturally with other hematite objects found in East Texas. It is possible to state that the hematite cones are made from similar materials and with similar workmanship. The precise workmanship and high degree of polish on some of these objects, including the Prairie Creek cone, indicate that they were more than just ordinary tools.

ACKNOWLEDGMENTS

I would like to thank my good friend Bo Nelson for providing me information about the Brieger Point cone.

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Certain Caddo Sites on Stone Chimney Creek, Cherokee County, Texas

Mark Walters and Timothy K. Perttula, with a contribution by LeeAnna Schniebs

INTRODUCTION

Limited archaeological investigations coupled with private landowner's surface collections on Stone Chimney Creek in northwestern Cherokee County, Texas has resulted in the recording of nine new Caddo sites, several of which appear to have been occupied after ca. A.D. 1650 in the Allen phase. The landowner had collected artifacts on his farm and contacted the Texas Historical Commission (THC) about getting information about them, who in turn contacted the author, a member of the Texas Archeological Stewardship Network. The landowner was interested in learning more about the native inhabitants who had once called this portion of Stone Chimney Creek home.

Stone Chimney Creek originates in northern Cherokee County and flows in a southerly direction before joining the Neches River under present day Lake Palestine (Figure 1a-b). The study area is some 4.8 km north of the confluence of Stone Chimney Creek and the Neches River. Stone Chimney Creek, in the study area, is deeply entrenched with a narrow floodplain and steep valley walls. Therefore, in the study area, there are no good alluvial settings for archaeological sites. Rather, archaeological sites are located on upland slopes or on top of upland landforms paralleling Stone Chimney Creek. Some of the site settings are unusual, being at the head of dry drainages and gullies, as they are in the adjoining Flat Creek basin (Perttula and Nelson 2007, 2009a, 2009b; Perttula et al. 2010) and long distances (in terms of easy access to water) from Stone Chimney Creek proper.

The soils in the study area are of the Nacogdoches series, which are the principal red soils in the Redlands section of East Texas. The iron and red pigments in these soils permeate everything: skin, clothing, the outside of houses, even artifacts. Depending on the degree of slope, soil layers and fertility vary across the study area; the steeper slopes are heavily eroded. Parent material is greensand marl or glauconitic sandy clay and clay (Mowery and Oakes 1958:26-27). Certain locations in the study area have been mined of soil for construction purposes. There is evidence of old farming activities, such as farming terraces, but currently large portions of the study area have been cleared and developed for pasture. This land clearing and mining provided good surface visibility at certain sites, resulting in some large surface collections from those areas. Shovel tests were conducted at six of the recorded sites and a 1 x 1 m test unit was placed in a midden deposit at 41CE426. This article characterizes the work to date on these Stone Chimney Creek sites, focusing mainly on five sites with the largest surface collections. The article concludes with a discussion of the broader character and cultural affiliation of these sites with respect to the recently defined Upper Neches River cluster of Historic Caddo sites (Perttula 2007; Marceaux 2011).

BACKGROUND

In the Neches River basin, after A.D. 1400, Caddo settlements include sites of the Frankston phase and the later Allen phase. The Frankston phase (ca. A.D. 1400-1650) is thought to have developed into the Allen phase (ca. A.D. 1650-1800) (Story and Creel 1982:34). In addition to traditionally made and decorated Caddo ceramics, including the distinctive type Patton Engraved, Allen phase sites tend to have scant amounts of European trade goods, such as gunflints, gun parts, and glass beads. The Allen phase

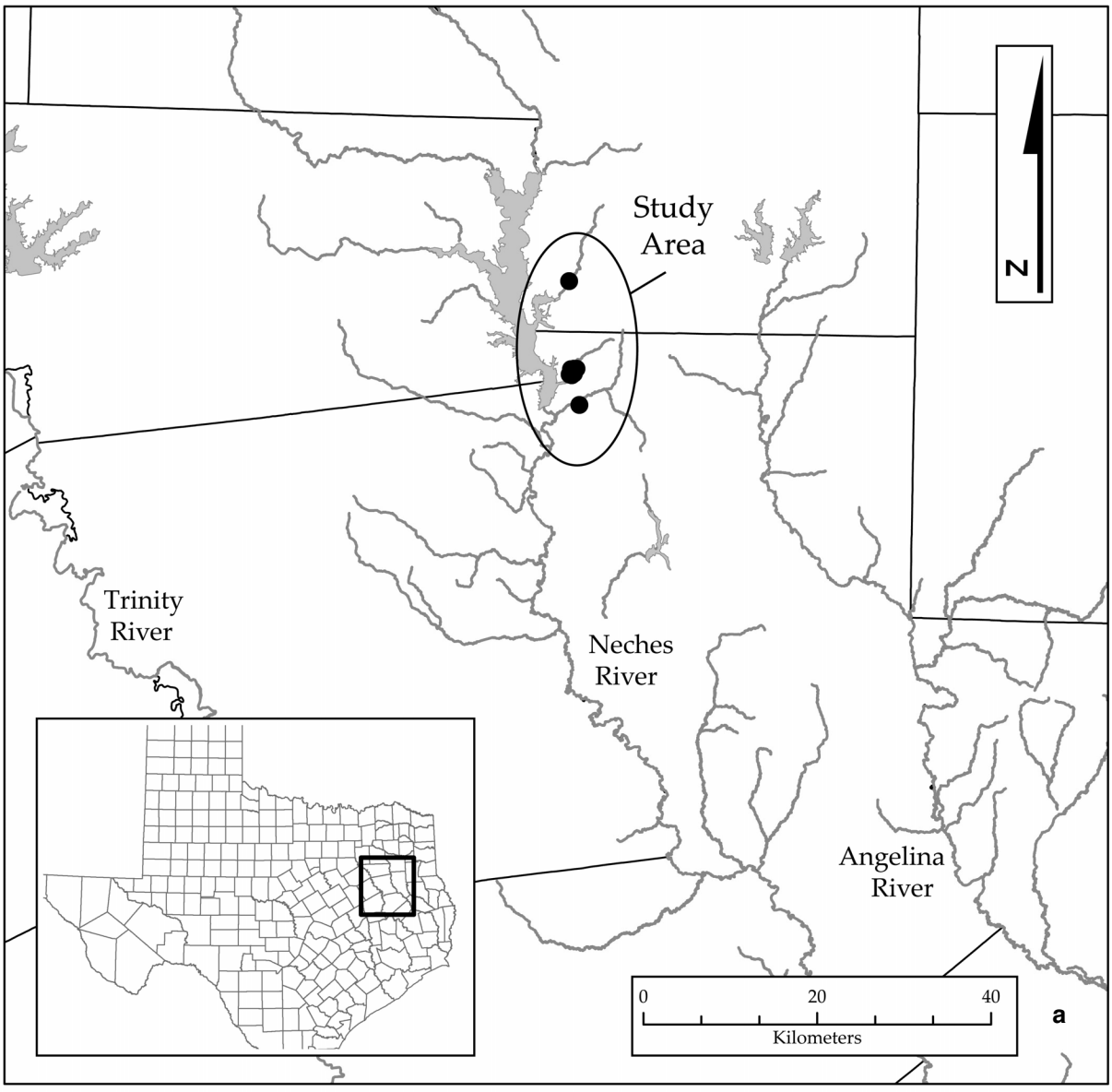

Figure 1. The study area: a, regional context, with sites on Saline Creek, Stone Chimney Creek, and Flat Creek in the upper Neches River basin in East Texas.

groups who occupied the Neches and Angelina river basins are thought to be direct ancestors of the Hasinai tribes who interacted with the Spanish missionaries and soldiers that occupied the area between ca. A.D. 1690-1731.

This article focuses on the nine sites on Stone Chimney Creek in the Neches River drainage and previous work relating to the Frankston and Allen phases that has been done in the vicinity (see Figure 1a-b). The study group of nine sites occurs in a relatively small geographic area (less than 1 km in length, see Figure 1b). The percentages of brushed pottery, which ranges from more than 71% to 90+%, and evidence of Patton Engraved sherds at four of the sites, suggest that all of the Stone Chimney Creek sites were occupied in Historic Caddo Allen phase times. It is tempting to suggest that all of these sites were contemporaneous, forming an extended and dispersed village in the Stone Chimney Creek valley. What is not known is if these nine sites constitute an isolated community or are part of a larger Historic Caddo settlement.

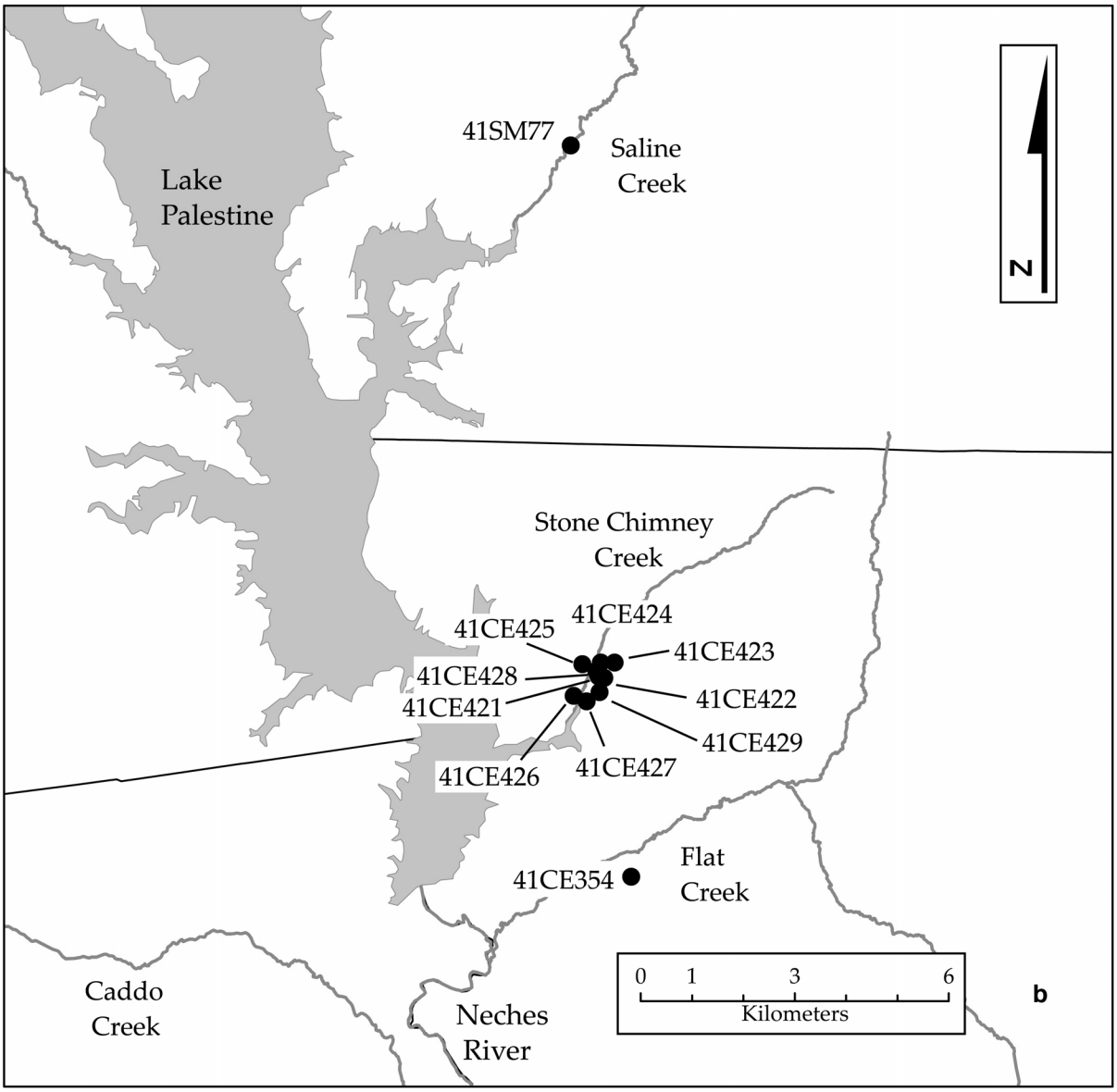

Figure 1. The study area: b, local context, with sites on Saline Creek, Stone Chimney Creek, and Flat Creek in the upper Neches River basin in East Texas.

Previous archaeological investigations in the area include salvage work done within or near Lake Palestine, where 10 sites were excavated before construction of the dam and lake. Several of these 10 sites had Frankston phase occupations, the William Sherman site had an example of Poynor/Patton Engraved (Anderson et al. 1974:Figure 76b), as well as assemblages with more than 50% brushed pottery. The Stone Chimney sites, with brushed percentages of 90%+, would seem to fall later in time than the Lake Palestine sites.

An unrecorded site some 4 km north of the study area has a Patton Engraved rim sherd from a carinated bowl (Figure 2). The sherd has grog/hematite temper and is 6.1 mm thick. It is from a vessel that has been fired in a reduced atmosphere and cooled in the open air (see Teltser 1993:Figure 2). There is a horizontal row of pendant triangles above the carination point with white pigment in the lines.

The furthest north (some 10 km) any known examples of Patton Engraved are found in this part of the Upper Neches River basin is a Patton/Poynor Engraved vessel from Burial 4 at the FIN S 20

Figure 2. Patton Engraved carinated bowl sherd from an unrecorded site 4 km north of the study area.

(41SM77) site on Saline Creek in southern Smith County, Texas (Perttula 2006:Figure 217; see also Johnson 1961) The vessel decoration consists of hatched panel dividers forming negative ovals with two rows of excised triangles and white pigment in the lines. This vessel is part of the Buddy C. Jones collection at the Gregg County Historical Museum in Longview, Texas.

To the south of the Stone Chimney Creek sites on Flat Creek, test excavations at the Kah-hah-ko-wha site (41CE354) revealed an Allen phase (ca. A.D 1650-1800) occupation (Perttula and Nelson 2007). Ceramics recovered include Patton Engraved fine wares and 80+% brushed wares. In addition, two gunflints and an iron fragment that may have been part of an iron kettle were found. (Perttula 2006:Figures 70-71). Based on the percentage of brushed sherds, several of the Stone Chimney Creek sites date later than the Kah-hah-ko-wha site. Other Historic Caddo sites recently recorded on Flat Creek include the Blue Branch, Pendulum, and Pine Snake sites (Perttula and Nelson 2009b; Perttula et al. 2010). The Pine Snake artifact assemblage includes pieces of obsidian from a northern New Mexico source.

NINE STONE CHIMNEY CREEK SITES IN THE STUDY AREA

41CE421

41CE421 is located on a sandy slope some 0.19 km east of Stone Chimney Creek (see Figure 1b). A spring that feeds into Stone Chimney Creek is located on the south side of the site. An eroding field road coupled with recent land clearing, including leveling of old farming terraces, resulted in many exposures where a large surface collection of artifacts was gathered by the landowner (Table 1). Based on surface observation, the site covers 2500 m^2 (0.6 acres) Shovel tests indicate the archaeological deposits are in

Table 1. Artifacts recovered from 41CE421.

Artifact Category	N	Percent
Caddo ceramic sherds	2353	98.3
Partial engraved bowl	1	<0.1
Sandy paste sherds	7	0.3
Chipped stone tools	2	0.1
Lithic debris	18	0.8
Ceramic pipe sherds	10	0.4
Fired clay ball	1	<0.1
Ground stone	1	<0.1
Totals	2393	99.9

a yellowish-brown sandy loam A/E horizon, with numerous concretions of ironstone, that is 0-60 cm in thickness overlying a red clay B-horizon.

The vast majority of artifacts in the surface collection are Caddo ceramic sherds (98.3%), followed by lithic debris from the manufacture of chipped stone tools, and pipe sherds. There are also a few sandy paste sherds—Goose Creek Plain, *var. unspecified*—chipped stone tools, portions of a reconstructed ceramic vessel, a fired clay ball, and a single ground stone tool (see Table 1).

The Caddo ceramic sherd assemblage is dominated by decorated utility ware rim and body sherds, as these account for 74.2% of all the sherds, and 96.7% of all the decorated sherds (Table 2). Plain rims are relatively abundant, indicating that the 41CE421 vessel sherds are from plain vessels as well as decorated fine wares and utility wares. Decorated fine ware sherds comprise only 2.5% of the assemblage.

The more than 1800 decorated sherds in the 41CE421 assemblage are dominated by sherds with brushing (Table 3). Brushed, brushed-tool punctated, and brushed-incised sherds account for 88.1% of the decorated sherds, followed by sherds with incised (4.1%), engraved (3.3%), and punctated (2.1%) decorations. There are also sherds from vessels with pinched, neck banded, and appliqued decorations.

Table 2. The Caddo ceramic sherd assemblage from 41CE421.

Sherd Type	N	Percent
Plain body	495	21.0
Plain rims	17	0.7
Plain base	36	1.5
Subtotal, plain sherds	548	23.3
Decorated fine ware	59	2.5
Decorated utility ware	1746	74.2
Subtotal, decorated sherds	1805	76.7
Totals	2353	100.0

Table 3. Decorated Caddo Sherds from 41CE421.

Decorative Method	N	Percent
Fine Ware		
Patton Engraved	16	0.9
Other engraved	43	2.4
Subtotal	59	3.3
Utility Ware		
Brushed	1562	86.5
Brushed/tool punctuated	25	1.4
Brushed-incised	4	0.2
Incised	74	4.1
Punctated	38	2.1
Punctated-incised	4	0.2
Tool punctated/appliqued noded	1	0.1
Neck banded	13	0.7
Pinched	20	1.1
Appliqued Noded	3	0.2
Appliqued	2	0.1
Sub-total	1746	96.7
Totals	1805	100.0

Decorated Fine Wares

Patton Engraved

Sixteen of the 59 fine ware sherds (27%) are identified as being from Patton Engraved vessels. All of the Patton Engraved sherds have triangular tick marks rather than linear ticks in the following elements: single straight line with triangular ticks (n=11), single curved line with triangular ticks (n=1), multiple straight lines with triangular ticks (n=3), and opposing lines with triangular ticks (n=1). No pigment was detected in any of the engraved lines.

Other fine ware decorated sherds include those with an engraved cross-hatched filled triangle (n=1), and the cross-hatched triangle measures 2.4 x1.3 mm and is from a bottle; multiple curved engraved lines (n=6); single curved engraved line (n=1); opposed engraved lines (n=12, Figure 3a); engraved straight lines with hatched pendant triangles (n=1); multiple straight engraved lines (n=6); and parallel engraved lines filled with hatched marks (n=1). Two fine ware rim sherds are identified as Poynor Engraved with opposed engraved lines forming negative circles (Figure 3c-d); one of the rims has possible rim peaks. One sherd unidentified as to type is an engraved rim with lip notching and a single horizontal line below the lip (Figure 3e). Average sherd thickness for the decorated fine wares is 6.3 mm.

Figure 3. Engraved sherds from 41CE421: a, rim with opposing engraved lines; b, rim with horizontal line; c-d Poynor Engraved rims; e, engraved rim with lip notching.

Partial Caddo bowl

A partial ceramic carinated bowl was reconstructed from sherds collected from the surface at 41CE421 (Figure 4). It was identified as Poynor Engraved *var. Blackburn*. Nine rectangular panels were evenly spaced around the rim. The panels were divided by vertical engraved lines which formed triangles at the top and bottom of the vertical lines. The lines had a white pigment rubbed in them.

Figure 4. Poynor Engraved, *var. Blackburn* carinated bowl from 41CE421.

NON-PLASTICS: grog

VESSEL FORM: carinated bowl

RIM AND LIP FORM: inverted rim with a rounded lip

CORE COLOR: B (fired and cooled in a reducing environment)

INTERIOR SURFACE COLOR: dark grayish-brown

EXTERIOR SURFACE COLOR: dark grayish-brown

WALL THICKNESS (RIM, BODY, AND BASE IN MM): rim, 7.0; body, 5.8; base, 9.8

INTERIOR SURFACE TREATMENT: smoothed

EXTERIOR SURFACE TREATMENT: smoothed

HEIGHT (IN CM): 7.9

ORIFICE DIAMETER (IN CM): 10.6

DIAMETER AT BOTTOM OF RIM OR NECK (IN CM): 12.0

BASE DIAMETER (IN CM): 5.0

DECORATION: engraved with rectangular panels

TYPE: Poynor Engraved, *var. Blackburn*

Decorated Utility Wares

There are 1746 decorated utility sherds from 41CE421. Almost 90% (n=1562) are decorated by some form of brushing, including 1546 body sherds (Figure 5) and 16 rims. The brushed rims have horizontal brushing (n=10), vertical brushing (n=4), and diagonal brushing (n=2).

The brushed sherds (n=1562) have the following decorative elements:

Parallel brushed	1463	93.6%
Opposed brushed	63	4.0%
Overlapping brushed	18	1.2%
Horizontal brushed	11	0.7%
Vertical brushed	5	0.3%
Diagonal brushed	2	0.1%

Parallel and opposed brushed elements are the most common, particularly the former. It is likely that the majority of the parallel brushed sherds are body sherds from vertically brushed jars.

The second most common utility ware decoration is incising. There are 68 incised body sherds (Figure 6a-d) and six incised rims: opposed incised (n=3), straight incised line (n=2), and cross-hatched incised (n=1). Decorative elements present in the incised sherds (n=74) are included in Table 4.

There are 38 punctated sherds in the 41CE421 sherd assemblage. Nine have tool punctates in rows, including five rims (see Figure 6f). There are 24 body sherds with random or freely placed tool punctates. Five sherds, including one rim, have fingernail punctates.

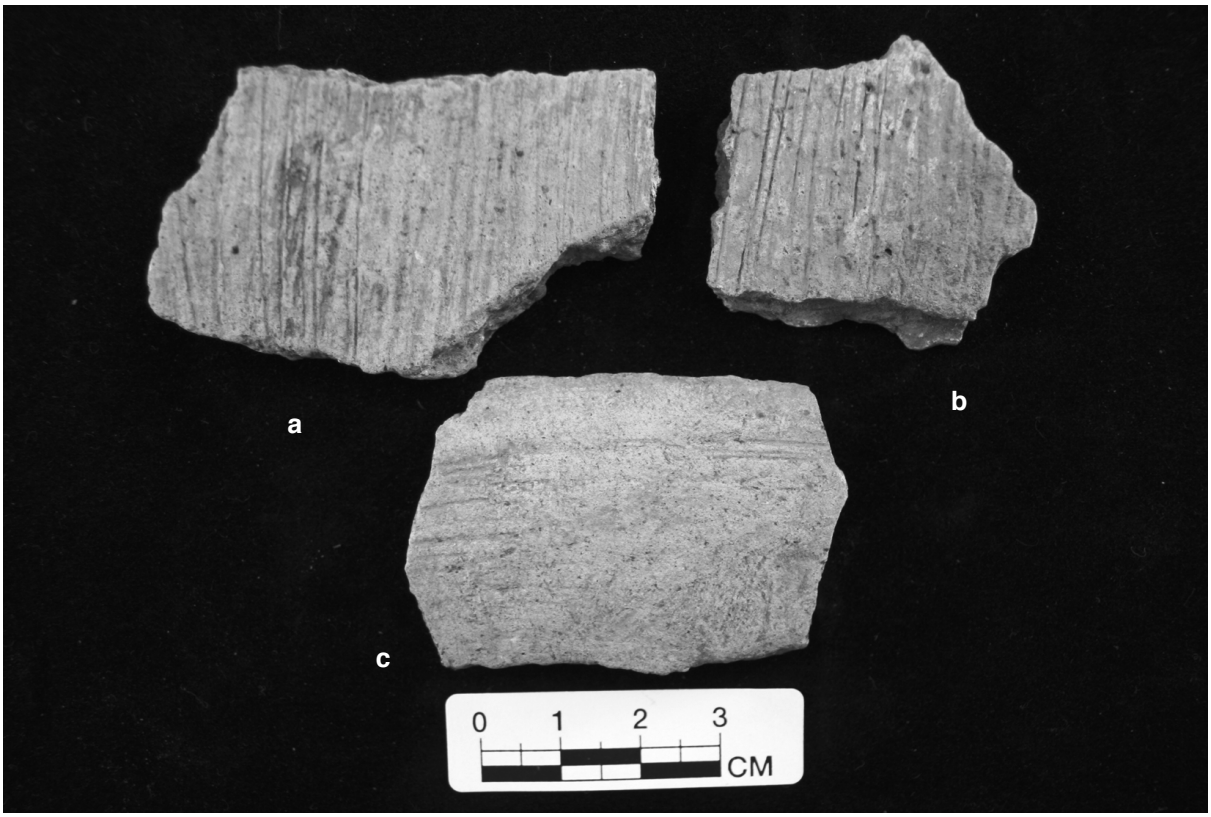

Figure 5. Parallel brushed body sherds from 41CE421: a-b, parallel brushed; c, horizontal brushed.

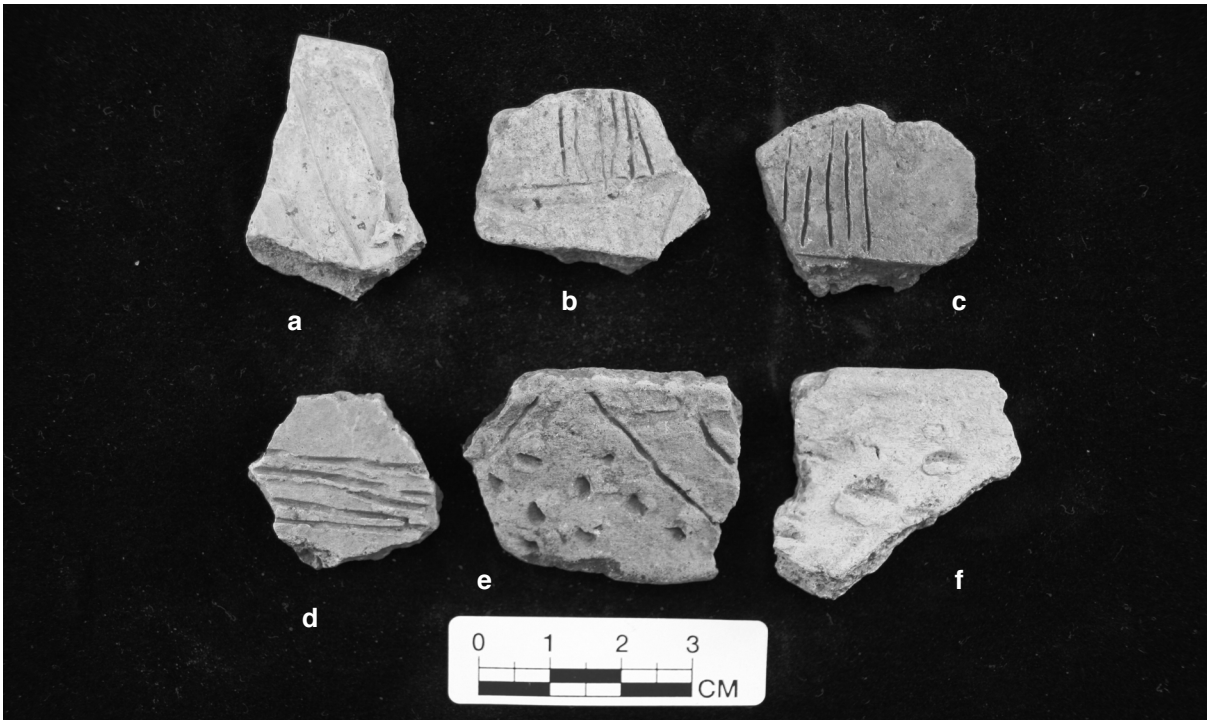

Figure 6. Incised, incised-punctated, and punctated sherds from 41CE421: a, diagonal incised; b-c opposing incised; d, parallel incised; e incised/punctated; f, punctated rim.

Table 4. Incised decorative elements in the 41CE421 sherds.

Decorative element	No.	Percent
Parallel incised	37	50.0%
Straight incised line	23	31.1%
Cross-hatched incised	6	8.1%
Opposed incised	6	8.1%
Curvilinear incised	2	2.7%

The other decorated utility wares at 41CE421 include brushed-punctated (probably from Bullard Brushed jars), Killough Pinched, and LaRue Neck Banded sherds (Table 5). There are also a few Maydelle Incised sherds, including a rim with diagonal opposed incised lines and tool punctated-filled triangle elements (see Figure 6e), as well as appliqued and appliqued-punctated sherds.

Table 5. Other decorated utility ware sherds in the 41CE421 assemblage.

Decorative element	Number
Brushed-punctated	25
Punctated-incised	4
Brushed-incised	4
Tool punctated/node	1
Nodes	3 (including 1 rim)
Pinched (Killough Pinched)	20
Neck Banded	13 (including 4 rims)
Appliqued fillet	2
Totals	72

Plain Caddo Sherds

The plain ware sherds (n=548) include 17 rims, 495 body sherds, and 36 bases. Plain rim and lip forms include: direct rim/rounded lip (n=9), direct rim/exterior folded lip (n=3), inverted rim/exterior folded lip (n=1), everted rim/exterior folded lip, rim peak (n=2), direct rim/rounded and exterior folded lip (n=1), and everted rim/rounded lip (n=1). These are primarily from bowls, but plain everted rim jars are also present in the assemblage.

The average thickness for the plain body sherds (n=495) is 7.9 mm, indicating that the vessels were sturdy and probably large in size/volume. The average thickness of the flat bases is 13.0 mm. One of the 36 bases was a ring base with a circular depression for a hollow pedestal (as with Killough Pinched vessels, see Suhm and Jelks 1962:Plate 46a-c) to fit in.

The plain/decorated sherd ratio (P/DR), excluding the 36 bases, is 0.28. This P/DR value places 41CE421 in Group I from comparative sherd assemblage and seriation data from Lake Palestine

Middle-Historic Caddo sites and nearby (Allen phase) Caddo sites (Perttula 2007). We will return to a discussion of the ceramic seriation data from Upper Neches River Caddo sites later in this article.

The 41CE421 sherds are from vessels that are tempered primarily with grog, although hematite and bone were secondary temper inclusions (Table 6). There is very little difference between any of the wares with respect to temper selection, as grog is found in 66.7-73.8% of the four wares, grog-hematite-tempered sherds account for 20-26.7% of the assemblage, and bone temper is found in 4.0-6.6% of the 41CE421 sherds. The low use of bone temper is consistent with other Historic Caddo assemblages in the upper Neches River basin.

Table 6. Temper Classes by Ceramic Ware from 41CE421.

Wares	Grog	Grog-Hematite	Bone	Totals
Fine ware	69.3+	26.7	4.0	100.0
Utility ware	66.7	26.7	6.6	100.0
Brushed ware	70.4	24.7	4.9	100.0
Plain ware	73.8	20.0	6.2	100.0

+percentage

Several different ways of firing ceramic vessels were followed by the Caddo potters that lived at 41CE421. The most important and well-controlled methods were vessels fired in a low oxygen or reducing environment (61%) (Table 7), particularly firing where the vessel was cooled in the open air, leaving a thin oxidized zone on one or both surfaces of the vessel core. More than one-third of the sherds (36%) were from vessels that were fired and cooled in a high oxygen environment. Only 3% of the vessels were not well-fired, and these were from vessels that were incompletely oxidized during firing.

Table 7. Firing conditions of the Ceramic Sherds from 41CE421.

Firing Conditions*	Percentage
A (oxidizing environment)	36.0
B (reducing environment)	17.0
C-E (incomplete oxidized)	3.0
F-H (reduced but cooled in the open air)	44.0
Total	100.0

*Categories are based on Teltser (1993:Figure 2a-h).

Clay Pipes

There are 10 ceramic pipe sherds in the 41CE421 collection. These include five plain elbow pipe bowl fragments (Figure 7c). One pipe bowl had engraved hatched pendant triangles below a flat lip (Figure 7b). Other pipe decorations include tiny circular punctates on a pipe stem (n=2, Figure 7a), triangular

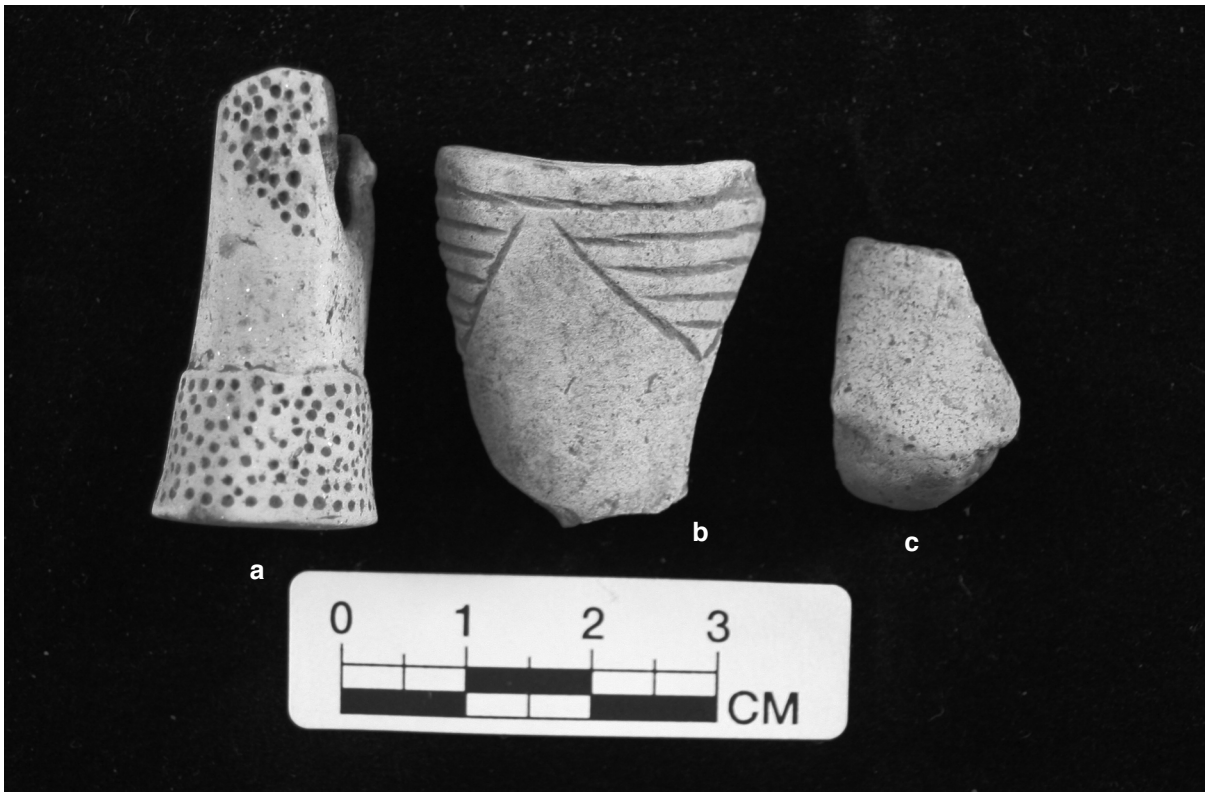

Figure 7. Ceramic pipe sherds from 41CE421: a, punctated pipe stem; b, engraved pipe bowl; c, plain elbow pipe sherd.

ticks (n=1), and one sherd with a single engraved line (n=1). These are typical Upper Neches River basin decorated elbow pipe styles (see Perttula 2011a:Figure 6-23, 2011b:Figures 9 and 16).

Clay ball

There is one fired clay ball (15.3 mm diameter) in the 41CE421 artifact collection with a smoothed surface. Similar fired clay balls were recovered from 41CE422.

Sandy Paste Sherds

Included in the artifacts from 41CE421 are seven sandy paste sherds, likely from Goose Creek Plain, *var. unspecified* vessels. These sandy paste sherds are from an earlier Woodland period occupation (dating from ca. 500 B.C. to A.D. 800) and are not included in the Caddo ceramic sherd analysis. Three of the sandy paste sherds are plain rims; two rims are inverted with rounded lips and one is direct with a rounded lip. There are four plain sandy paste body sherds.

Lithic debris

Lithic debris (n=18) was not very abundant at 41CE421 (Table 8). All of it is from chert raw materials, including likely non-local gray chert (56%) and locally available cherts (tan and red chert, 44%). The low percentage of cortical flakes (5.6%) suggests that the lithic debris is primarily the product of tool maintenance and resharpening activities of completed tools rather than the on-site manufacture of tools from cortex-covered pebbles, cobbles, or large flakes.

Table 8. Lithic debris from 41CE421.

Material	Cortex	No.
gray chert	non-cortical	10
tan chert	non-cortical	4
red chert	non-cortical	3
red chert	cortical	1
Total		18

Chipped stone tools

There were three chipped stone tools collected from 41CE421, including one expedient flake tool, one arrow point fragment, and one possible gunflint. The flake tool has bilateral edge retouch and use wear. It is made from a gray chert cortical flake. Its dimensions are: length, 31.5 mm; width, 18.9 mm; and thickness, 6.3 mm. There is one unidentified arrow point medial section made from gray chert.

The possible gunflint is made from a gray chert (Figure 8). There is evidence of edge retouch on one end, while the opposite end had a snap fracture. The dimensions are: length, 25.1 mm; width, 26.0 mm; and thickness, 6.7 mm.

Figure 8. Possible gunflint from 41CE421.

Ground stone tool

A ferruginous sandstone nutting stone was collected from the surface at 41CE421. One side is smoothed and slightly convex. The opposite side is smoothed, concave, and has a 3.0 cm circular depression or pit. Dimensions are: length, 13.0 cm; width, 9.0 cm; and thickness, 4.3 cm.

41CE423

41CE423 is located some 0.4 km east of Stone Chimney Creek (see Figure 1b) on an upland landform that has been subjected to extensive soil mining activities. This site is bordered on one side by a dry gully that ends at Stone Chimney Creek. This site, like 41CE429 (see below), is a long distance from present (and presumed past) water sources. Based on surface observations and limited shovel tests, the site covers some 3600 m^2 (0.9 acres). Shovel tests in undisturbed areas indicate shallow reddish-brown soils of the Nacogdoches series, with numerous concretions of ironstone, overlying a red crumbly B-horizon clay.

A total of 139 artifacts are in the collections from 41CE423. Over 91% of these artifacts are ceramic sherds (Table 9), 5% are lithic debris, chipped stone tools and pipe sherds account for 1.4% each of the site sample, and the one ground stone tool represents 0.7% of the collection.

Table 9. Artifacts recovered from 41CE423.

Artifact Category	N	Percent
Caddo ceramic sherds	127	91.4
Chipped stone tools	2	1.4
Lithic debris	7	5.0
Ceramic pipe sherds	2	1.4
Ground stone	1	0.7
Totals	139	99.9

There were 127 ceramic sherds collected from 41CE423, the largest percentage of which are from utility wares (74.8%) (Table 10). The average sherd thickness for the parallel brushed sherds was 8.0 mm. The temper used in vessel manufacture was 63.3% grog, 30.0% grog/hematite-tempered, and 6.7% grog/bone-tempered.

There were only two engraved fine ware sherds in the 41CE423 assemblage, both probably examples of Patton Engraved (Table 11). One had two rows of hatched pendant triangles (and could be from a Hume Engraved vessel); the other had a single straight engraved line with small triangles/ticks (Figure 9c-d).

The utility wares were dominated by parallel brushed body sherds (88.7%). Brushed sherds number 89 or 91.8% of the decorated sherds in the ceramic assemblage (see Table 11). There were also five incised sherds: three with straight lines, one with diagonal lines, and one sherd with finely drawn concentric lines (see Figure 9a).

Ceramic Pipes

There were two ceramic pipe sherds in the 41CE423 artifact collection. One was a plain grog-hematite-tempered bowl rim fragment with a 4.0 cm orifice diameter. The second pipe fragment was a portion

Table 10. The Caddo Ceramic Sherd Assemblage from 41CE423.

Sherd Type	N	Percent
Plain body	28	22.0
Plain base	2	1.6
Subtotal, Plain sherds	30	23.6
Decorated fine ware	2	1.6
Decorated utility ware	95	74.8
Subtotal, Decorated sherds	97	76.4
Totals	127	100.0

Table 11. Decorated Sherds from 41CE423.

Decorative Method	N	Percent
Fine Ware		
Engraved/Patton Engraved	2	2.1
Subtotal	2	2.1
Utility Ware		
Incised	5	5.2
Parallel brushed	86	88.7
Overlapping brushed	2	2.1
Vertical brushed	1	1.1
Brushed/tool punctated	1	1.1
Subtotal	95	98
Totals	97	100.1

of the stem and bowl and had grog/bone temper. The stem had an outside diameter of 21.7 mm with a 14.3 mm opening. The stem had four horizontal incised lines around the rim or stem opening and the lower part of the bowl had a series of four horizontal incised lines (see Figure 9e).

Chipped Stone Tools

A Perdiz arrow point made from gray chert was found on the surface of 41CE423 (Table 12). It is 21.6 mm in length, 11.4 mm in width, and has a thickness of 2.4 mm (see Figure 9f). Other chipped stone tools include two expedient flake tools, as well as a gray chert dart point base with a rounded stem.

The lithic debris (n=8) was knapped from gray, brown/gray, and tan chert raw materials and a local gray quartzite (see Table 12). On-site tool manufacture occurred at 41CE423, based on the proportion of cortex in the lithic debris sample (37.5%).

Figure 9. Selected artifacts from 41CE423: a, concentric incised body sherd; b, brushed-punctated sherd; c-d, Patton Engraved; e, incised pipe stem and lower bowl sherd; f, Perdiz arrow point.

Table 12. Lithic Debris and Tools from 41CE423.

Raw Material	Cortical	Non-cortical	Flake tools	Arrow point
Gray chert	1	4	1	1
Brown/gray chert	–	1	1	–
Tan chert	1	–	–	–
Gray quartzite	1	–	–	–
Totals	3	5	2	1

A nutting stone or pitted stone was collected from the surface at 41CE423. It was made from ferruginous sandstone and had shallow 3 cm diameter holes on both sides. Dimensions of the tool are 9.5 cm in length, 5.0 cm in width, and 4.0 cm in thickness.

41CE422

41CE422 is located a short distance east of 41CE421 (see Figure 1b) and future work may determine that they are part of the same site. However, present information, based on surface observations, indicates that they are separated by some 50 m and a dry drainage or gully. The site core is located some 0.3 km from Stone Chimney Creek. Based on current observations, including limited shovel tests, the site covers some 4000 m^2 (1.0 acres). The soils are a shallow reddish-brown sandy loam with numerous ironstone concretions overlying a dense red clay B-horizon.

A total of 44 prehistoric artifacts were recovered from 41CE422 (Table 13). More than 95% of the artifacts were from surface collections. Two artifacts, a parallel brushed body sherd and a dart point mid-section made from a white chert, were collected from 0-20 cm bs in a shovel test. There was one gray chert flake, non-cortical, found in the surface collection, along with five clay balls.

The sherds include 10 plain body sherds and one plain grog-hematite rim sherd (Table 14); the rim is direct with a rounded and exterior folded lip. The 10 plain body sherds average 7.4 mm in thickness. Fifty percent were tempered with grog and the other 50% had grog/hematite temper.

Table 13. Artifacts Recovered from 41CE422.

Artifact Category	N	Percent
Caddo ceramic sherds	37	84.1
Clay balls	5	11.4
Chipped stone tools	1	2.3
Prehistoric lithic debris	1	2.3
Totals	44	100.1

There are no fine ware sherds present in the small sherd collection from 41CE422 (see Table 14). Of the 26 utility sherds, 22 (84.6%) are brushed (Table 15). About 86% of the brushed sherds have parallel brushing marks, two are overlapping brushed, and one rim has vertical brushing (Table 16). The brushed sherds are an average of 7.6 mm in thickness. About 45.5% of the brushed sherds are grog-tempered, 50% have grog/hematite temper, and 4.5% are tempered with grog and bone.

One body sherd in the utility ware assemblage from 41CE422 has random tool punctates. There are two incised body sherds with parallel lines. The third is a rim with horizontal incised lines; the rim is direct with a rounded lip.

41CE426

41CE426 was first identified as a surface scatter of artifacts in a disturbed area where brush had been piled and burned. It is located some 40 m west of Stone Chimney Creek on a sandy upland landform that is currently in coastal Bermuda pasture (see Figure 1b). Shovel tests and limited surface observations indicate the site covers 3500 m^2 (0.875 acres).

Ten positive shovel tests subsequently excavated at the site indicate that it has a reddish-brown sandy loam A-horizon that averaged 24.7 cm in depth overlying a red clay B-horizon. ST 6 was expanded into a 50 x 50 cm unit to better sample concentrations of artifacts and midden soils identified in the shovel test. To obtain a larger sample of the contents of the midden deposit, a 1 x 1 m test unit was placed adjacent to

Table 14. The Caddo Ceramic Sherd Assemblage from 41CE422.

Sherd Type	N	Percent
Plain rim	1	2.7
Plain body	10	27.0
Subtotal, Plain sherds	11	29.7
Decorated fine ware	–	0.0
Decorated utility ware	26	70.3
Subtotal, Decorated sherds	26	70.3
Totals	37	100.0

Table 15. Utility Wares from 41CE422.

Utility Wares	N	Percent
Brushed	22	84.6
Incised	3	11.5
Punctated	1	3.8
Totals	26	99.9

Table 16. Brushed Vessel Sherd Decorative Elements from 41CE422.

Decorative Class and Element	No.
Parallel brushed	19
Overlapping brushed	2
Vertical brushed	1
Totals	22

ST 6. A soil profile of the west wall of Unit 1 indicates a very dark brown (7.5YR 2.5/3) midden soil that extends to sterile red (2.5YR 2.5/4) clay at 22 cm bs.

A total of 210 artifacts have been recovered from investigations at 41CE426. Most of them are Caddo ceramic sherds (Table 17), but the artifacts also include chipped stone tools and lithic debris, ground stone tools, and a ceramic pipe sherd.

Ceramic Vessel Sherds

The average thickness of the 41CE426 sherds is 7.7 mm. Approximately 58% of the sherds are grog-tempered, 41% are grog- and hematite-tempered, while only 1% have bone temper. The plain/decorated sherd ratio (P/DR) for 41CE426 is 0.23.

Table 17. Artifacts Recovered from 41CE426.

Artifact Category	N	Percent
Caddo ceramic sherds	198	94.3
Chipped stone tools	1	0.5
Prehistoric lithic debris	7	3.3
Ground stone	3	1.4
Ceramic pipe sherd	1	0.5
Totals	210	100

Fine Wares

There are five decorated fine ware sherds (3.1% of the decorated sherds, and 2.5% of all the sherds, Table 18). Three are from Patton Engraved vessels, two rims, and one body sherd. The first Patton Engraved rim (ST 5, 0-20 cm bs) is direct with a rounded lip. The grog-tempered rim is 8.5 mm thick and it has been fired in a reduced atmosphere. It is decorated with large excised pendant triangles from a single horizontal engraved line below the lip (Figure 10b). The second Patton Engraved rim (Unit 1, 10-20 cm bs) also has excised pendant triangles from a single horizontal engraved line and has grog-hematite temper. The rim is direct, with a rounded lip. The rim is 7.4 mm thick and is from a vessel that has been fired in a reduced atmosphere (Figure 10c).

The third Patton Engraved sherd (Unit 1, 10-20 cm bs) is a 4.8 mm thick body sherd from a grog-tempered vessel. The sherd has been fired and cooled in a reduced atmosphere. The decoration on the sherd consists of a single straight engraved line with tick marks.

The other two engraved sherds are from King Engraved vessels, a new Historic Caddo ceramic type (Marceaux 2011; Middlebrook 2008; Perttula, Bush et al. 2010; Perttula et al. 2011). These two engraved cross-hatched sherds compare favorably with the type King Engraved as identified at the J.T. King site (Middlebrook 2008:4), but the small sherd sizes do not indicate if they are in panels or zones. The first King Engraved rim (ST 7, 0-20 cm bs) is direct with a rounded lip (Figure 11a). Its orifice diameter is 24.0 cm. The rim is 6.3 mm thick and it has grog-hematite temper. It has engraved cross-hatching below the lip. The second King Engraved sherd is a body sherd (ST 7, 0-20 cm bs) with cross-hatching (Figure 11b). The sherd is grog-tempered, and 6.5 mm thick. It is from a vessel that had been fired in an oxidizing environment.

Utility Wares

Brushed sherds account for 95% of the utility wares from 41CE426. The vast majority of these sherds have parallel brushing marks, most from the body of brushed jars (Table 19).

There are also three brushed-punctated sherds, including two brushed-punctated rims with rows of tool punctates pushed through horizontal brushing (Bullard Brushed) and one brushed-punctate body sherd with rows of tool punctates pushed through parallel brushing marks (Table 20). The other utility ware sherds have brushed-appliqued (n=1), incised (n=2), and too punctated (n=2) decorative elements.

The predominant method Caddo potters used in firing the vessels that were used at 41CE426 was to fire them in a reducing or low oxygen environment, but then to cool them in the open air (oxidizing environment). Almost 54% of the sherds from the site were fired in this way (Table 21). Another 13.2% were fired and cooled in a reducing environment. Almost one-third of the sherds are from vessels that

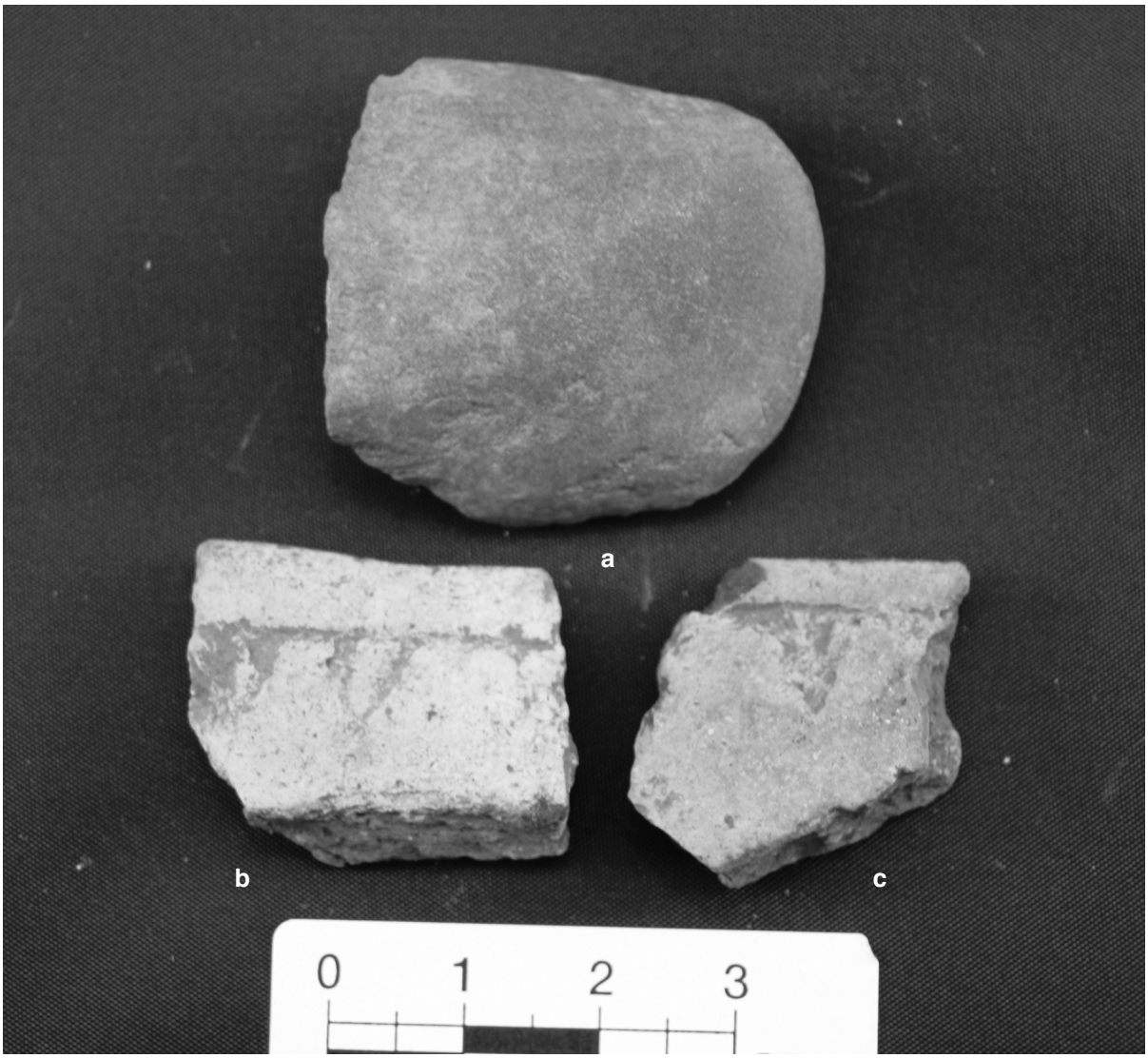

Figure 10. Selected artifacts from 41CE426: a, celt fragment; b-c, Patton Engraved rim sherds.

Table 18. The Caddo Ceramic Sherd Assemblage from 41CE426.

Sherd Type	No.	Percent
Plain rim	2	0.1
Plain body	35	17.7
Plain base	1	0.5
Subtotal, Plain sherds	38	19.2
Decorated fine ware	5	2.5
Decorated utility ware	155	78.3
Subtotal, Decorated sherds	160	80.8
Totals	198	100.0

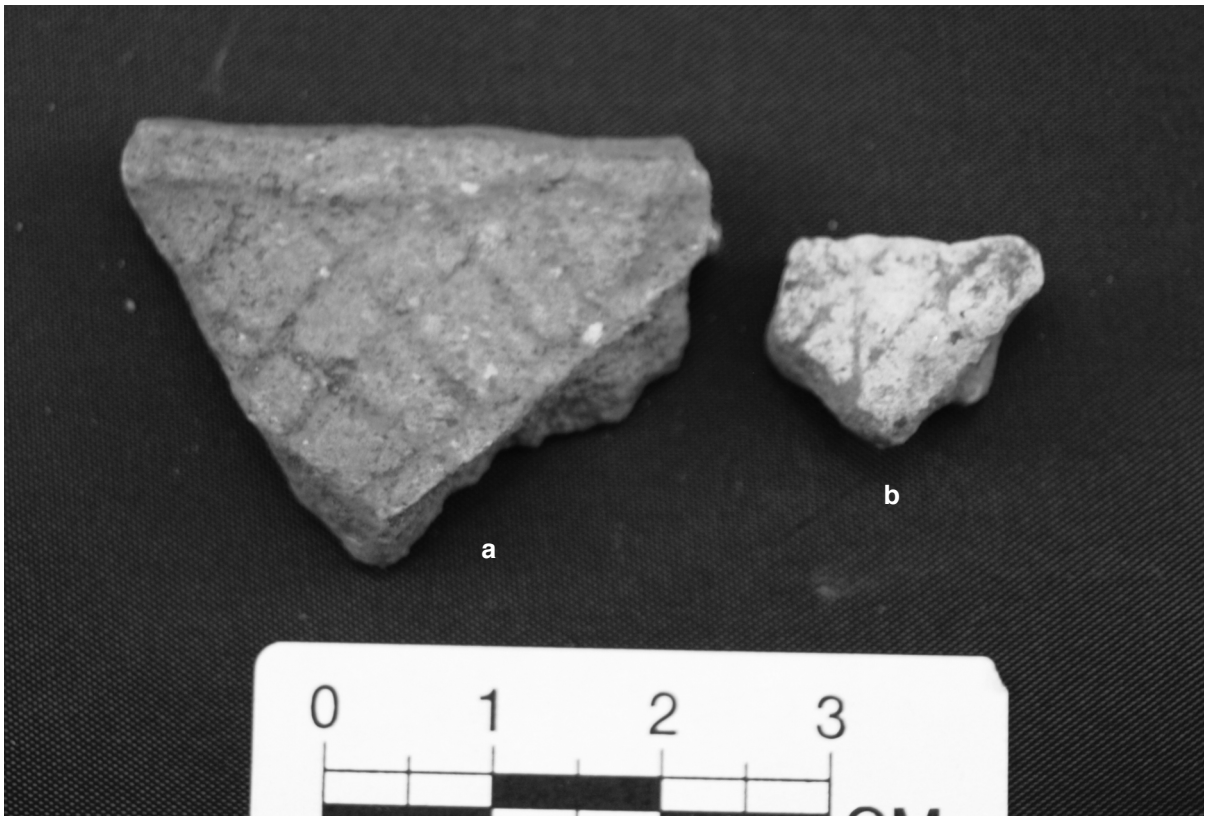

Figure 11. King Engraved sherds from 41CE426.

Table 19. Decorative Elements in the Brushed Vessel Sherds from 41CE426.

Decorative element	N
Parallel brushed	136
Overlapping brushed	7
Vertical brushed	2
Horizontal brushed	2
Totals	147

Table 20. Utility wares from 41CE426 other than those solely with Brushed elements.

Utility Wares	No.
Brushed-punctated	3
Brushed-appliqued fillet	1
Incised	2
Tool punctated	2
Totals	8

were fired and cooled in an oxidizing environment, leaving vessels with light red and yellow interior and exterior vessel surfaces as well as the vessel core.

Ceramic Pipe Sherds

Table 21. Firing Conditions of the Ceramic Sherds from 41CE426.

Firing conditions*	Percent
A (oxidizing environment)	31.1
B (reducing environment)	13.2
E (incompletely oxidized)	1.9
F-H (reducing environment, cooled in the open air)	53.8
Totals	100.0

*Categories are based on Teltser (1993:Figure 2)

One plain ceramic elbow pipe bowl sherd was recovered from Unit 1, 10-20 cm bs at 41CE426. The rim is everted and the lip rounded. It is grog-tempered, 3.4 mm thick, and has been fired in an oxidizing atmosphere.

Ground Stone Tools

A gray sandstone celt fragment was recovered from the surface (see Figure 10a). The bit end is polished. The second celt/pecking stone was recovered from ST 8, 0-19 cm bs. It is made from graywacke sandstone from an Ouachita Mountains raw material source area and has a smoothed surface. The poll end shows signs of battering. The bit end has been broken and reworked to create a blunt surface, perhaps used as a grinding or pecking tool (Figure 12).

The third ground stone tool is a ferruginous sandstone nutting stone. One surface has a 32.1 mm diameter circular depression. The opposite side has faint parallel grooves, suggesting it may also have been used as an abrader. Dimensions are: 77.0 mm in length, 72.0 mm in width, and 30.4 mm in thickness.

Only seven pieces of lithic debris are in the 41CE426 artifact assemblage (Table 22). This includes two cortical flakes of a local tan chert, which were from a pebble reduced on site, and five non-cortical flakes from a non-local gray chert and a local red hematite; the latter was likely produced in the shaping or refurbishing of a hematite ground stone tool.

Flake Tool

The one flake tool, from Unit 1, 0-10 cm bs, is made from a light gray chert and has edge retouch on one side. Dimensions of the tool are: 33.2 mm in length, 15.8 mm in width, and 3.5 mm in thickness.

Figure 12. Celt or pecking stone.

Table 22. Lithic Debris from 41CE426.

Raw Material	Cortical	Non-cortical
Tan chert	2	–
Gray chert	–	3
Light gray chert	–	1
Red hematite	–	1
Totals	2	5

ANALYSIS OF FAUNAL REMAINS FROM 41CE426: A LATE 17TH CENTURY CADDO HABITATION SITE IN CHEROKEE COUNTY, TEXAS

LeeAnna Schniebs

Recent archaeological investigations at 41CE426 yielded 304 animal bone fragments (see Appendix 1). They were recovered from limited shovel testing and a 1 x 1 m test unit (Unit 1) which revealed a midden deposit. The total weight of the collection is 192.3 grams, and 74 (24.3%) specimens are burned. In general, the sample is highly fragmented but bone surfaces are well preserved. Because of fragmentation, only 44 pieces (14.4%) could be specifically identified. Table 23 provides the number of identified specimens (NISP) in the 41CE426 faunal collection, as well as the minimum number of individuals (MNI) by taxon, their preferred habitat, and the percent of the sample represented by each taxon.

Table 23. Summary of Taxonomic Recovery from 41CE426.

Taxon	NISP	MNI	Habitat*	Percent
Vertebrata (indeterminate)	29	–	–	9.5
Indeterminate fish (Osteichthyes)	1	1	A	0.3
Pond Slider (*Pseudemys* sp.)	1	1	A	0.3
Indeterminate turtle (Testudinata)	6	–	–	2.0
Turkey (*Meleagris gallopavo*)	4	1	WE	1.3
White-tailed deer (*Odocoileus virginianus*)	32	1	WE	10.5
Mammal (large Mammalia)	231	–	–	76.0
Total	304	4		100

*Preferred Habitat (Davis 1978; Schmidly 1983): A=aquatic (rivers, swamps, marshes); W=woodlands (deciduous or pine forests); WE=wooded edges (open meadows, parkland)

Standard zooarchaeological identification techniques were employed in this analysis, using comparative skeletal collections. Attributes that were examined for each of the bone fragments include taxon, element and portion of that element, symmetry, burning, and weight. Unidentifiable specimens were consolidated into two categories: large mammal and indeterminate vertebrate. This analysis is concerned with identifying the general preferences of late 17th century Caddo animal exploitation in the East Texas Pineywoods. The faunal remains came from 0-22 cm bs in the archaeological deposits (Table 24). They can be considered subsistence debris, although animals only provided a supplement to the Caddo diet; agriculture played a large role in the Caddo life as well by Historic Caddo times.

Despite the high quantity of unidentifiable faunal remains and severe fragmentation, a few inferences can be made about the 41CE426 faunal sample. The fish vertebral fragment compares favorably to a medium-sized bowfin and suggests that aquatic habitats were exploited, possibly the nearby Stone Chimney Creek. Further evidence of the exploitation of aquatic habitats is demonstrated by the identification of the pond slider turtle carapace fragment. The indeterminate turtle shell fragments compare favorably to musk/mud turtle (*Kinosternidae* sp.) and/or box turtle (*Terrapene* sp.). The musk or mud turtle prefers habitats near water as well. The box turtle is a slow-moving animal that occurs in woodlands and bottomlands and is easily caught when the occasion arises by passive hunting methods, often by women or children. The turkey occurs as wild fowl in open woodland environments (Robbins et al.

Table 24. Distribution of 41CE426 Faunal Remains by Provenience (Shovel Test or Unit).

Provenience (cm bs)	Taxon	NISP	Total NISP by ST/Unit & Level
ST 1, 0-20	large mammal	1	1
ST 6, 0-20	deer	5	
	large mammal	29	34
ST 10, 0-16	fish	1	
	deer	2	
	large mammal	24	27
ST 11, 0-18	deer	2	
	large mammal	7	9
Unit 1, 0-10	unidentifiable	6	
	turtle	1	
	deer	4	
	large mammal	48	59
Unit 1, 10-20	unidentifiable	22	
	pond slider	1	
	turtle	5	
	turkey	4	
	deer	18	
	large mammal	120	170
Unit 1, 20-22	unidentifiable	1	
	deer	1	
	large mammal	2	4

1983), preferring the wooded edges of the Pineywoods in East Texas. The four fragments are probably the remains of a game bird, as the Caddo were known to hunt turkey (Newcomb 1993). One turkey leg bone fragment is burned.

Wooded edges are the preferred habitat of deer. The 32 deer bones are mainly comprised of lower limb bone fragments, but one antler fragment, one vertebral fragment, a complete upper molar, and one tooth fragment were also recovered. It is generally thought that non-meat parts of large game are frequently left at the hunt/kill location and only those body parts with high meat yield or tool value are transported from the hunting area back to the habitation site as distance increases. The recovery of certain elements, or their lack of recovery, can be considered evidence of the procurement strategies that were being practiced. The elements identified in this sample suggest that perhaps the entire carcass was brought to the site for processing. The limb bones provided material necessary for tool manufacturing and food preparation such as marrow extraction. Seven pieces are spirally fractured and six specimens are burned. A femur fragment and one phalange are unfused, indicating an immature individual. Deer is most likely represented by the unidentifiable large mammal bone fragments as well (see Table 23). Fifteen large mammal bones are spirally fractured and 67 pieces are burned. The 29 indeterminate vertebrate remains could represent any taxonomic class, but it is noted in comments accompanying Appendix 1 that they compare favorably to bird or small mammal.

This faunal sample suggests that aquatic and wooded edges were hunted, but other Caddo faunal assemblages demonstrate that all habitats were exploited for the rich environmental resources of East Texas. Further investigations at 41CE426 could provide additional information as to the subsistence preferences and animal hunting activities of late 17th century Caddo peoples in the upper Neches River basin.

41CE428

41CE428 may be part of 41CE421, located some 60 m north across a shallow dry drainage gully (see Figure 1b), but the two areas could not be connected by a continuous surface distribution of artifacts. A surface collection resulted in the recovery of four parallel brushed body sherds scattered across a 1500 m^2 (0.375 acres) sandy rise. Shovel tests are needed to better determine the site boundaries as well as to establish if intact archaeological deposits and features are present on this landform. The brushed sherds indicate that the site dates no earlier than ca. A.D. 1300.

41CE424

41CE424 is located on a sandy slope at the base of an upland landform (see Figure 1b). The site is in a mixed pine/hardwood setting, located 0.9 km east of Stone Chimney Creek; it s bordered on the north by a dry drainage or gully. Soils are Nacogdoches fine sandy loam (Mowery and Oakes 1958). Five parallel brushed, grog-tempered (n=2), grog-bone-tempered (n=1), and grog-hematite-tempered (n=2) body sherds were found in a cow trail; their recovery indicates that 41CE424 was occupied no earlier than ca. A.D. 1300. No further archaeological investigations have been conducted at this location.

41CE425

41CE425 is located across Stone Chimney Creek from 41CE424 on a sandy upland landform (see Figure 1b). Soils are of the Nacogdoches series. Nine shovel tests, four of which were positive, have an average depth of A-horizon sediments of 27.6 cm. The artifact density is low, approximately 4.0 artifacts per positive shovel test, or approximately 32 artifacts per square meter.

The total number of artifacts from 41CE425 from surface collections and shovel tests include nine ceramic body sherds, six pieces of lithic debris, and one chipped stone graver tool. The small collection of ceramic sherds include seven decorated sherds, five (71.4%) of which are brushed, one other body sherd has tool punctates, and another has parallel incised lines.

The one tool is a graver made from a non-cortical gray chert flake. The lithic debris includes gray quartzite (n=1, cortical), gray chert (n=1, non-cortical), brown chert (n=2, 1 cortical, 1 non-cortical), and heat-treated red quartzite (n=2, non-cortical).

41CE427

41CE427 is located on a slope of a sandy upland landform some 75 m east of Stone Chimney Creek in a pasture setting (see Figure 1b). Soils are of the Nacogdoches series (Mowery and Oakes 1958). Artifacts were collected from the surface in a dirt field road. No shovel tests have been conducted at this location. Artifacts collected from 41CE427 include two brushed, grog-tempered (one also has hematite temper inclusions), body sherds, and seven flakes (five gray chert, non-cortical; one tan chert, non-cortical; and one red heat-treated quartzite, cortical). The occurrence of brushed ceramic sherds suggests the site was not occupied before ca. A.D. 1300.

41CE429

This site is located where feral hogs had rooted up a portion of a pasture. If not for the hog activity, this site might have been overlooked, because it is located on the back portion of an upland landform some 0.4 km from Stone Chimney Creek (see Figure 1b). It is bordered on the north by a dry drainage/gully and on the east by a sharp rocky rise.

From when the site was first located, additional land-clearing activities have resulted in a fairly large surface collection plus artifacts from 34 positive shovel tests. Based on surface observation and the shovel tests, the site covers some 3000 m^2 (0.75 acres). Shovel tests revealed that the landform has a shallow reddish-brown sandy loam A-horizon, with numerous ironstone concretions, overlying a red crumbly clay B-horizon. No features were detected in the shovel testing, although burned bone occurred in some shovel tests and was also observed on the surface, indicating that there could be intact cooking features or midden deposits present at 41CE429.

A total of 618 artifacts were recovered from 41CE429, including 11 pieces of animal bone and one burned mussel shell fragment (Table 25). As with all the Stone Chimney Creek sites, ceramic sherds dominate the assemblage (94.5%), with small amounts of lithic debris, chipped stone and ground stone tools, ceramic pipe sherds, and a clay spindle whorl.

Table 25. Artifacts Recovered from 41CE429.

Artifact Category	No.	Percent
Caddo ceramic sherds	584	94.5
Lithic debris	14	2.3
Possible gun flint	1	0.2
End-side scraper	1	0.2
Ground stone tools	2	0.3
Ceramic pipe sherds	3	0.5
Clay spindle whorl	1	0.2
Burned bone fragments	11	1.8
Burned mussel shell fragment	1	0.2
Totals	618	100

The 584 ceramic sherds from 41CE429 are comprised of 465 decorated sherds and 119 plain sherds (Table 26). Excluding base sherds, the P/DR ratio is 0.22, consistent with a Historic Caddo occupation in the Upper Neches River basin. The average sherd thickness is 9.5 mm, suggesting large and durable vessels were in use. About 83% of the sherds from 41CE429 have grog temper, another 16.1% are grog-hematite tempered, while only 0.8% have bone temper inclusions.

The 465 decorated sherds from 41CE429 are grouped into nine utility ware decorative classes and two fine ware decorative classes (Table 27). Utility wares comprise 97.4% of all the decorated sherds from the site, with brushed sherds accounting for 87.7% of the utility wares.

Among the brushed sherds, by far the most common decoration on them is parallel brushing, as these sherds account for 92% of all the brushed vessel sherds (Table 28). These are probably from the body of brushed jars, and if their orientation could be discerned, it would most likely be that the brushing is vertical on the vessel body. A few other sherds have overlapping, horizontal, or vertical brushed marks.

Table 26. The Caddo Ceramic Sherd Assemblage from 41CE429.

Sherd Type	No.	Percent
Plain rim	2	0.3
Plain body	102	17.5
Plain base	15	2.6
Subtotal, Plain sherds	119	20.4
Decorated fine ware	12	2.1
Decorated utility ware	453	77.6
Subtotal, decorated sherds	465	79.6
Totals	584	100

Table 27 . Decorated Sherds from 41CE429.

Decorative Method	N	Percent
Fine Ware		
Patton Engraved	6	1.3
Other engraved	6	1.3
Subtotal	12	2.6
Utility Ware		
Brushed	408	87.7
Brushed/tool punctated	10	2.2
Brushed/incised	2	0.4
Brushed/appliquéd	1	0.2
Incised	17	3.7
Punctated	5	1.1
Neck banded	3	0.6
Ridged	2	0.4
Grooved	5	1.1
Subtotal	453	97.4
Totals	465	100

Brushed/punctated sherds (n=10) have tool and crescent-shaped punctates through the brushing; one sherd has a row of tool punctates above parallel brushing (Figure 13b-f, Figure 14c, and Figure 15a). The incised sherds (n=17) have simple geometric designs, including parallel incised lines (n=10), opposing incised lines (n=5), and curvilinear incised lines (n=2). There are five Lindsey Grooved sherds with horizontal wide grooves (Figure 15b-c).

Table 28. Decorative Elements in Brushed Vessel Sherds.

Decorative Class and Element	N
Parallel brushed	395
Overlapping brushed	10
Horizontal brushed	2
Vertical brushed	1
Total	408

Figure 13. Incised-punctated and brushed-punctated rim and body sherds from 41CE429: a, incised-punctated rim sherd; b-f, brushed-punctated.

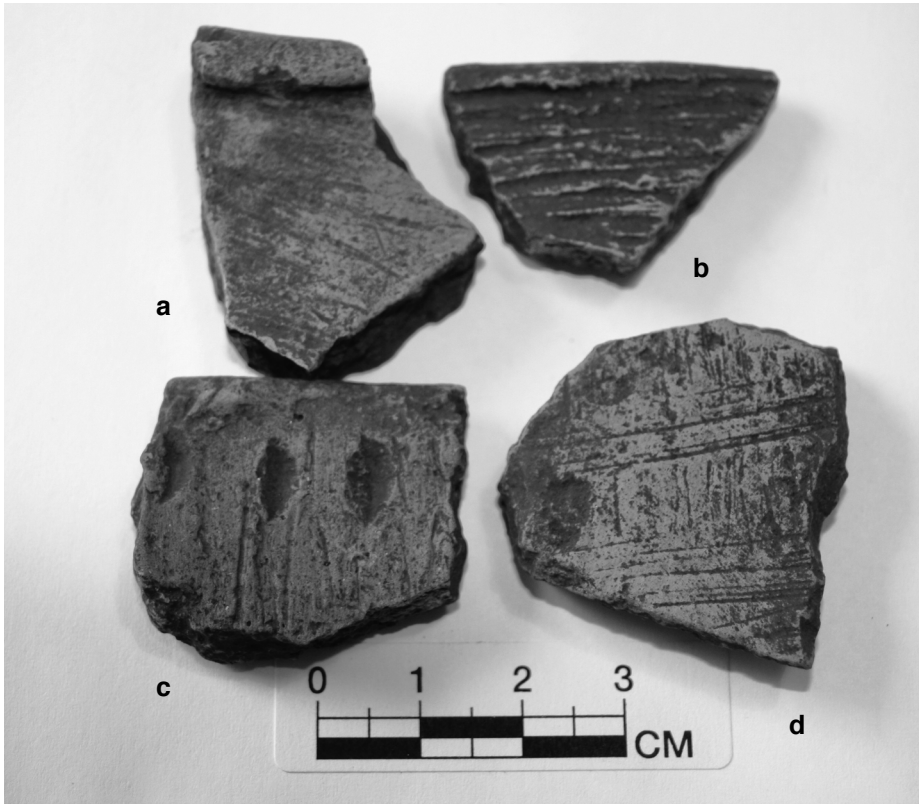

Figure 14. Brushed, brushed-incised, and brushed-punctated rim and body sherds from 41CE429: a-b, brushed rims; c, brushed-punctated rim; d, brushed-incised body sherd.

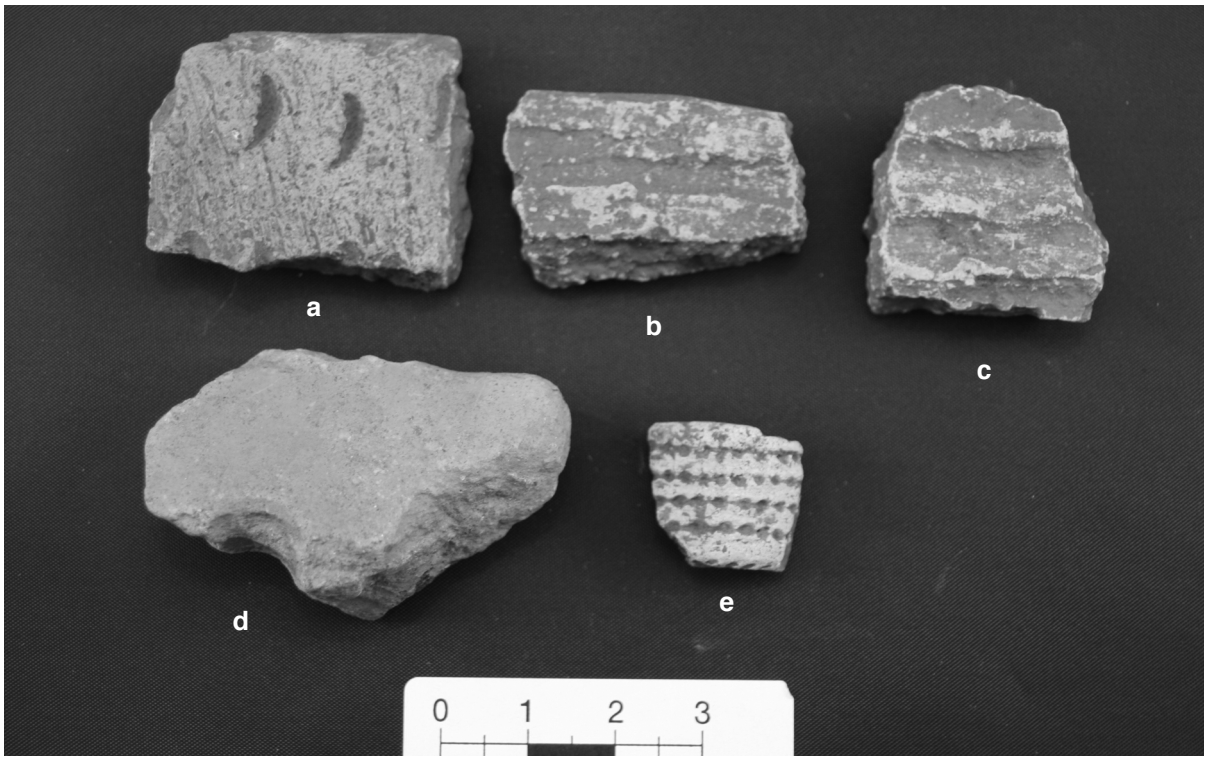

Figure 15. Utility ware sherds and other ceramic artifacts: a, brushed-punctated rim; b-c, Lindsey Grooved body sherds; d, spindle whorl; e, engraved ceramic pipe sherd.

Engraved sherds (n=12) account for 2.6% of the total decorated sherds. Patton Engraved sherds (n=6) are dominated by triangular tick marks on horizontal lines (Figure 16a-b). Other engraved elements (n=6) are opposed lines (n=3), straight lines (n=2) and one engraved circle with a cross-arm design.

Figure 16. Patton Engraved rim sherds from 41CE429.

There are two plain rims. One, direct with a rounded lip, is from a carinated bowl with an orifice diameter of 14.0 cm. There are 15 plain bases from 41CE429 that average 13.0 mm in thickness.

More than 55% of the sherds from 41CE429 are from vessels that were fired in a low oxygen or reducing environment (Table 29). Of these, about 80% were subsequently cooled in the open air, leading to a lighter oxidized surface on either one or both vessel surfaces, as well as a thin oxidized zone in the vessel core. A considerable number of sherds are from vessels that were fired and cooled in a high oxygen or oxidizing environment, while only 9.5% of the sherds were from vessels that were not thoroughly oxidized during firing.

Table 29. Firing Conditions of the Ceramic Sherds from 41CE429.

Firing conditions*	Percent
A (oxidizing environment)	34.7
B (reducing environment)	11.6
C-E (incompletely oxidized)	9.5
F-H (reducing environment, cooled in the open air)	44.2

*Categories are based on Teltser (1993:Figure 2a-h)

There is one broken spindle whorl from 41CE429 (see Figure 15d). All the surfaces of this base sherd are smoothed and there is a partial drilled hole (9.5 mm in diameter) on one broken edge. Dimensions are: length, 47.0 mm; width, 29.8 mm; and thickness, 20.0 mm.

There are three clay pipe sherds in the 41CE429 assemblage. One partial pipe bowl sherd has a flat lip and horizontal engraved lines with tick marks (see Figure 15e), analogous to the decorative elements on Patton Engraved ceramic vessels. A second pipe bowl sherd has incised lines that are vertical on the bowl portion, then the incised lines make a right angle and extend down the pipe stem. The third pipe example is a partial stem that has small reed or cane punctates.

Chipped Stone Tools and Lithic Debris from 41CE429

Lithic material is very scarce at 41CE429, consisting of 11 flakes, one tested cobble, one scraper, and one possible gunflint. Three gray chert flakes were recovered from shovel tests 13 and 14 between 0-20 cm bs. A fine screen sample from shovel test 18 yielded four small chert pressure flakes. There are four flakes collected from the surface: two gray chert, non-cortical, one with white inclusions; one gray quartzite, cortical; one dark gray chert, non-cortical. The tested cobble is gray quartzite and has two flake removal scars. Dimensions of the cobble are: length, 47.8 mm; width, 30.3 mm; and thickness, 22.5 mm.

There is a small combination end and side scraper in the collection (Figure 17). It is made from a non-cortical tan chert flake. It is 22.0 mm in length, 11.5 mm in width, and 2.7 mm in thickness.

Figure 17. End scraper from 41CE429.

Gunflint

There is one possible gunflint from 41CE429. This possible gunflint is wedge-shaped and is made from a light gray chert with cortex at the heel. There is edge retouch on the narrow end of the wedge-shaped piece and evidence of battering. Dimensions are: length, 21.1 mm; width, 23.5 mm; and thickness, 8.2 mm.

According to Jay Blaine, recognized as an authority on gunflints, this example was almost certainly crafted by someone familiar with the shape of European spall forms of gunflints. But he explains the term "possible gunflints" could refer to any flint artifacts from a site that produces a few generally similar sub-rectangular to squared and bifaced examples with at least one retouched straight edge *and* recognized historic archaeological content. Guns such as the Spanish miquelet could utilize just about any size or shape of a stone that sparks (Jay Blaine, personal communication April 2, 2010). The presence of Patton Engraved sherds and a high percentage of brushed wares at 41CE429 indicate that the site falls in the time period of European contact in this part of East Texas, but more evidence in the form of other trade goods is needed to confirm if this example is actually a gunflint.

Ground Stone Tools

Two ferruginous sandstone ground stone tools were recovered from 41CE429. One is a nutting stone with a slight concave circular depression on one side. All surfaces have been smoothed. Dimensions are: length, 90.5 mm; width, 80.1 mm; and thickness, 30.5 mm. The second ground stone tool is also a nutting stone. It has a 35.9 mm diameter depression on one side that is 4.0 mm deep. Dimensions are: length, 47.8 mm; width, 30.3 mm; and thickness, 34.9 mm.

Faunal Remains

There were four small, unidentifiable pieces of burned bone recovered from a fine screen sample from shovel test 18. Seven other small pieces of burned bone were collected from the surface along with one piece of burned mussel shell.

DISCUSSION OF THE STONE CHIMNEY CREEK SITES

There are good archaeological reasons to believe that the Stone Chimney Creek sites represent part of a Historic Caddo community that was situated on a tributary to the Neches River in the upper Neches River Basin (see Figure 1a). A number of the sites along Stone Chimney Creek contain the kinds of material culture remains that are known to occur on other Historic Caddo sites in this region (Table 30; see also Perttula and Nelson 2007, 2009a, 2009b; Marceaux 2011:164-186, 413-433). The other five sites (41CE422, 41CE424, 41CE425, 41CE427, and 41CE428) have very small artifact samples, and definitive evidence of Historic Caddo occupations at them must await further investigations.

These sites on Stone Chimney Creek represent part of an Upper Neches cluster of Allen phase sites (see Perttula 2007:Figure 1; Marceaux 2011:Figure 9.1) that occur on tributaries of the Neches River. This cluster represents what are believed to be related Historic Caddo sites that occur in close proximity to each other. In historic times, the archaeology of the East Texas Caddo groups living in parts of the Neches-Angelina River basins is associated with the Allen phase, dated from ca. A.D. 1650-1800 or later: "The Allen phase is believed to have developed out of the Frankston phase, and more importantly, to have shared the same form of organization, kinds of inter-group interaction, and settlement patterns" (Story and Creel 1982:34).

Story and Creel (1982:32) have suggested that the Frankston and Allen phase populations were organized in a "weakly hierarchical structure" analogous to the Hasinai confederacy that was in existence by the late 17th-early 18th centuries (see Swanton 1942). Allen phase components are found in the Neches

Table 30. Study area sites and Historic Caddo archaeological elements present.

Site	Patton Engraved	Neck-Banded	Lindsey Grooved	Possible King Engraved	Possible gunflint
41CE421	X	X			X
41CE423	X				
41CE426	X			X	
41CE429	X	X	X		X

X=present in site artifact assemblages

and Angelina river basins in Cherokee, Anderson, Houston, Rusk, Smith, and Nacogdoches counties (see Cole 1975; Kenmotsu 1992; Perttula and Nelson 2006, 2007; Story 1982, 1995), and usually, but not always, depending in part on the age of the occupation and the access to European trade goods, contain small amounts of European trade goods found in village and burial contexts. Caddo domestic remains at these settlements included a variety of decorated ceramic fine wares (principally Patton Engraved) and utility wares (principally Bullard Brushed, La Rue Neck Banded, and Killough Pinched, usually grog or bone-tempered depending on which Allen phase cluster is under consideration) and with brushed vessel bodies, triangular and stemmed arrow points, elbow pipes (plain and decorated), ground stone tools, and bone tools. These Caddo groups were successful agriculturists.

Marceaux (2011:498-501, 507, and Table 10.6) notes that the Upper Neches cluster is best recognized by its ceramic assemblage character, featuring a very high rate of grog temper use and a correspondingly low rate of bone temper use, as well as a dominance of bushed pottery sherds among all the decorated sherds. Fine wares are primarily Patton Engraved. The Stone Chimney Creek sites with Historic Caddo occupations conform to these expectations, as only 0.8-6.7% of the sherds from 41CE421, 41CE423, 41CE426, and 41CE429 are bone-tempered, and between 87.7-91.9% of the decorated sherds are brushed. Patton Engraved sherds are found in each of these four sites.

From the comparisons of ceramic attribute data on Caddo sites in the region, a frequency seriation has been constructed, with six different groups of upper Neches River ceramic assemblages identified that can be seriated (see O'Brien and Lyman 1999) from oldest (Group VI) to youngest (Group I). The Stone Chimney Creek sites are assigned to Group I (Table 31). These groups seem to reflect temporal changes due to the high frequency of Late Caddo Frankston phase decorated types, such as Poynor Engraved, Maydelle Incised, Bullard Brushed, Hume Engraved, and engraved effigy vessels, that are found in the Groups II-IV sites (corresponding to the early, middle, and late parts of the Frankston phase)—as well as Patton Engraved sherds from sites in Group I—and the occurrence of Early and Middle Caddo types such as Canton Incised, Dunkin Incised, Holly Fine Engraved, and Pennington Punctated-Incised in the Group V and VI upper Neches River sites, as well as cf. Poynor Engraved sherds (i.e., early forms of Poynor Engraved) in components in Group V, including Lang Pasture (Perttula 2011a) and 41SM404 (Perttula 2011c).

This particular seriation, with three different temporal groupings of Frankston phase sites and one group of Allen phase sites, is also supported by differences in: (a) the proportions of Poynor Engraved varieties, Patton Engraved, engraved effigy vessels, Maydelle Incised, La Rue Neck Banded, and Bullard Brushed in upper Neches River Caddo burials (Perttula 2011a), (b) differences in the relative frequencies of common vessel forms in Poynor and Patton Engraved vessels (Kleinschmidt 1982:Figure 24), as well as (c) the occurrence of European trade goods. Corbin (2007) considers the Group I-IV Caddo sites part of an upper Neches River cluster that represents a conglomeration of constituent groups that share a broadly similar socio-political organization through time and space (see Story and Creel 1982:30-34).

Table 31. Comparative sherd assemblage data from selected upper Neches River basin Caddo sites (modified from Perttula 2011c:Table 23).

Site	No. of Dec. Sherds	% Brushed*	%bone-temper	%Wet-paste decorations	P/DR	Brushed/Wet paste ratio
GROUP I (post-A.D. 1650, Allen phase, Historic Caddo, with Patton Engraved) (*Stone Chimney sites with Patton Engraved)						
*41CE426	160	91.9	1.0	5.0	0.23	18.4
*41CE423	97	91.8	6.7	6.2	0.29	14.8
*41CE421	2353	89.5	5.4	7.8	0.28	8.5
*41CE429	465	87.7	0.8	9.7	0.22	9.07
Pine Snake	305	85.2	5.7	8.8	0.51	9.63
Blue Branch	49	84.0	?	6.1	0.57	13.67
41CE354	474	82.7	3.1	8.9	0.20	8.14
GROUP II (late Frankston phase, ca. A.D. 1560-1650)						
41HE22	228	85.5	?	7.5	0.62	11.4
Henry Lake	188	81.9	3.2	7.3	0.48	11.0
Debro	311	80.0	?	10.3	0.14	7.75
41SM91	179	82.7	?	13.4	0.55	6.17
A. C. Saunders	5750	75.2	15.5	14.2	0.21	5.30
William Sherman	525	75.8	?	16.2	0.44	4.68
GROUP III (middle Frankston phase, ca. A.D. 1480-1560)						
Forest Drive	1693	68.6	?	21.9	0.56	3.12
Halbert	1757	65.8	2.6	26.3	0.70	2.51
Woldert	1730	62.7	0.0	28.8	0.72	2.19
Ferguson	4116	60.8	<1.0	27.9	0.61	2.17
GROUP IV (early Frankston phase, ca. A.D. 1400-1480)						
Tomato Patch	912	49.2	?	41.7	1.50	1.21
41SM88	95	37.9	?	49.5	1.53	0.76
41AN38+	2435	35.9	6.7	38.0	1.40	0.91
Mitchell, Area D	54	32.1	0.0	33.3	1.37	1.50
GROUP V (Middle Caddo period, ca. A.D. 1200-1400)						
41SM404	446	16.0	8.5	60.7	1.73	0.26
41SM73	165	26.1	?	72.7	2.61	0.37

Table 31. Comparative sherd assemblage data from selected upper Neches River basin Caddo sites (modified from Perttula 2011c:Table 23), cont.

Site	No. of Dec. Sherds	% Brushed*	%bone-temper	%Wet-paste decorations	P/DR	Brushed/Wet paste ratio
White Mule	1404	18.5	1.5	63.7	2.61	0.29
41HE139	40	17.5	8.1	65.0	2.51	0.33
Broadway, Z1/2	256	10.9	28.8	70.0	3.97	0.16
GROUP VI (likely Early Caddo period, ca. A.D. 1000-1200)						
Broadway, Z3	155	9.7	32.3	73.5	3.80	0.13
Mitchell, Areas A-C	56	1.3	12.0	65.7	1.71	0.03
41SM87	36	0.0	?	69.4	4.44	0.00
The following five sites from Stone Chimney Creek did not have Patton Engraved sherds or a robust enough sample to place in a Group with any confidence						
41CE422	**26**	**84.6**	**4.5**	**15.4**	**0.42**	**5.5**
41CE425	**7**	**71.4**	**–**	**–**	**0.29**	**–**
41CE424	**5**	**100.0**	**–**	**–**	**–**	**–**
41CE428	**4**	**100.0**	**–**	**–**	**–**	**–**
41CE427	**2**	**100.0**	**–**	**–**	**–**	**–**

P/DR=plain/decorated sherd ratio; *% brushed represents the percentage of brushed sherds among all the decorated sherds; + combines sherd samples from northern and southern block excavation areas.

These comparisons of the composition of upper Neches River basin Caddo decorated sherd assemblages—and the temporal ordering and cultural affiliations they imply—are based on the percentage of brushed sherds in the decorated sherd sample, the percentage of bone temper in the assemblages, the percentage of wet-paste decorations other than brushing (i.e., incised, punctated, appliqued, neck-banded, etc.), the plain/decorated ratio (P/DR), and the brushed sherd/wet paste decorated sherd ratio (Perttula 2007). It has been shown repeatedly in Caddo ceramic studies in East Texas that the proportion of brushed sherds in decorated sherd assemblages steadily increases through time, beginning after ca. A.D. 1250, during the occupation of the Group V Caddo sites. In the well-dated A.D. 1320-1400 Middle Caddo component (the northern area) at the Lang Pasture site (41AN38), brushed sherds comprise 26% of the utility wares (see Table 31). Brushed sherds comprise between 10.9-26.1% of the decorated sherds in Group V sites, and wet-paste sherds (i.e., incised, punctated, etc.) account for between 50.3-72.7% of the decorated sherds in these assemblages. P/DR values range from 1.73-3.97 (see Table 31). By the early 15th century A.D., however, Caddo potters in the upper Neches River basin began to manufacture considerable numbers of jars with brushed vessel bodies and rims (Perttula 2011b), and by Historic Caddo times, more than 85% of the decorated sherds in upper Neches River basin sites are brushed (see Table 31). The fact that the proportion of brushed sherds is higher in the Stone Chimney Creek sites than any other Group I sites, and the P/DR values are very low (0.22-0.29), strongly suggests that the Stone Chimney Creek sites are the youngest known Historic Caddo sites in the upper Neches River cluster.

The ceramic assemblages summarized in Table 31, and those from nearby sites that have been recently analyzed in the upper Neches River basin (41CE324, see Perttula and Middlebrook [2009]; and

41HE337 in the upper Caddo Creek basin, see Perttula [2009]), especially those that date to Frankston phase times (Groups II-IV), share several characteristics that make clear the character of an upper Neches River basin Caddo ceramic tradition that developed from ca. A.D. 1400 to the late 17th to early 18th century. The decorated and plain sherd assemblages in these Frankston and Allen phase sites are (1) almost exclusively grog-tempered; bone-tempered pottery generally comprises less than 6% of the sherds, where that information is available; (2) brushed utility ware pottery dominates the decorated sherd assemblages, accounting for between 32-92% of all the decorated pottery (Perttula 2011a:Figure 6-68 and Table 6-38); (3) fine ware vessel sherds generally account for less than 10% of the decorated sherds, and their frequency decreases through time; (4) wet paste decorations on sherds are also more abundant than fine wares, accounting for between 5-49.5% of the decorated sherds, by site, and again decreasing in frequency through time; and (5) plain to decorated sherd ratios (P/DR) range from only 0.14-2.25, with most of the sites having P/DR values less than 1.53 for the ca. A.D. 1400-1480 Caddo sites, less than 0.72 for the ca. A.D. 1480-1650 Caddo sites, and less than 0.30 for the Historic Caddo Allen phase sites. This indicates that Lake Palestine area Caddo sites dating after ca. A.D. 1400 did not have many plain ware vessels. Generally speaking, the lower the P/DR value, the higher the proportion of brushed sherds in the Lake Palestine ceramic assemblages, and the younger the age of the ceramic assemblage. The engraved fine wares are Poynor Engraved and Hood Engraved in Frankston phase sites, and Patton Engraved, Hume Engraved, and King Engraved in Allen phase sites. By the late 17th century, Caddo sites in the upper Neches River basins have ceramic assemblages where brushed sherds account for more than 82% of the decorated sherds (see Table 31).

In summary, it appears to be the case that the Stone Chimney Creek sites were occupied in the late 17th-early 18th century A.D., during the early part of the Historic Caddo period. This temporal interval is supported by (a) the use of distinctive decorated elbow pipes, (b) a very high proportion of brushed utility wares, (c) few other kinds of decorated utility wares, but those that are present are the same range of types documented in other upper Neches River cluster sites (see Marceaux 2011:164-186, 413-433), and (d) the range of engraved fine ware sherds, which are from vessels with elements and motifs that compare favorably with Patton Engraved and King Engraved, a recently defined Historic Caddo fine ware type.

The groups who during the Allen phase occupied parts of the Neches and Angelina river basins were direct ancestors of the Hasinai tribes. Some of these tribes were living in or near the Spanish missions established on the El Camino Real de los Tejas (originally a Caddo trail) in the region between ca. 1691-1772, and they continued to maintain residence there until the 1830s (Barr 2011:21-29 and Figure IV). There were no Spanish missions established in the upper Neches River, however, as the area was well north of the Camino Real, and there is no available ethnographic or historical information (see Swanton 1942) concerning either the tribal identity of the Caddo groups that lived in the upper Neches River basin in historic times, or how long they continued to reside in the upper Neches after sustained European contact (after ca. A.D. 1720).

The archaeological findings from various Allen phase sites in the upper Neches River basin, including several sites in Anderson County (among them 41AN184, Perttula 2010) that have European trade goods, indicate that Caddo groups lived in this part of East Texas until at least the mid-18th century, if not later. A 1744 map by Bellin (Figure 18) may provide a clue to the tribal identity of the upper Neches River Caddo groups that occupied sites in the Upper Neches cluster.

This map locates the Pays des Cenis or the territory of the Hasinai Caddo in East Texas, including the Teijas (Tejas), Assinais (Hasinai), and Naouadiches in the Neches and Angelina River basins. It also shows the route of the Camino Real de los Tejas as it bisects the territory of these Caddo groups, and locates other Caddo groups—the Nacanne and Nondaque—well north of the Camino Real and on lands between the Neches and Trinity rivers. Based on the close similarity in the spelling of the tribal name, the Nondaque living on what appears to be the upper Neches according to the Bellin map (see Figure 18) may be related to the Nadaco (and then later Anadarko) tribe of the later 18th and early 19th centuries who lived in the upper Angelina and in the middle Sabine river basins. Thus, it is certainly possible that

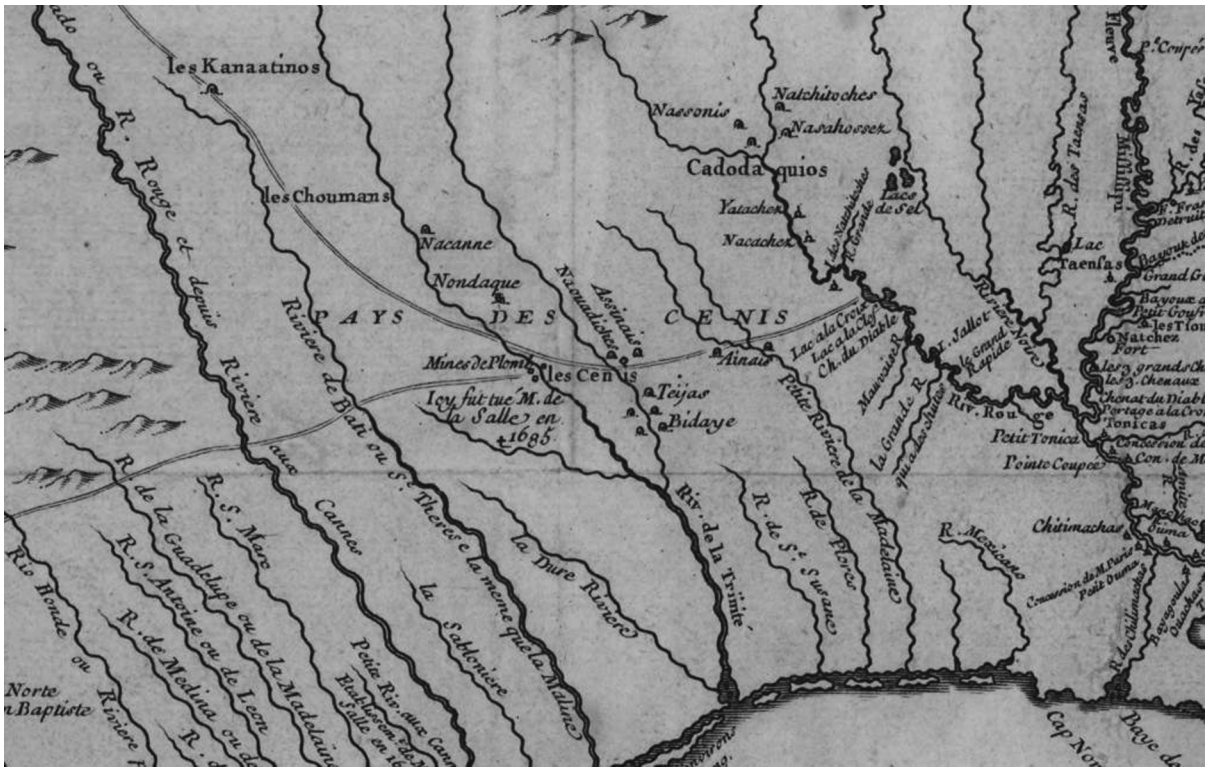

Figure 18. Detail of the 1744 Bellin map showing Pays des Cenis or Hasinai Caddo in East Texas, including the Teijas, Assinais, and Naouadiches in the Neches and Angelina River basins, the route of the Camino Real de los Tejas, and other Caddo groups (Nacanne and Nondaque) well north of the Camino Real and on lands between the Neches and Trinity rivers.

some of the Caddo living in the late 17th-early 18th century in this part of the region represent an ancestral Nadaco or Anadarko Caddo group that once lived in the upper Neches River basin. The Nacanne or Nacachau (see Carter 1995:70) lived upstream from the Nondaque in the Neches River basin (see Figure 18), but they are a poorly known tribe in the Hasinai Confederacy. Campbell (1996:922) indicates that they "lived in Eastern Texas during the late seventeenth and early eighteenth centuries. Their settlements were east of the Neches River in the area now occupied by Cherokee County." After that time, they apparently became part of one or more neighboring Hasinai tribes (Campbell 1996:922). As with the Nondaque, it is quite possible that Caddo communities or townships (see Barr 2011:Figure IV) living in the late 17th-early 18th century in this part of the region represent an ancestral Nacanne or Nacachau Caddo group that once lived in the upper Neches River basin.

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APPENDIX I, INVENTORY OF FAUNAL REMAINS FROM 41CE426

LeeAnna Schniebs

ST/Unit	Depth	Qty	Taxon	Elem/Por	Side	Age	Burn	Gnaw	Wt/g	Comments
ST 1	0to20	1	lg mam	unid			not		0.5	
ST 10	0to16	1	deer	astrag frag			not		1.5	
ST 10	0to16	1	deer	mtpod dist condyle			not		1.6	
ST 10	0to16	1	fish	vert frag	A		not		0.1	cf bowfin (med-size indiv)
ST 10	0to16	3	lg mam	unid			burn		0.4	
ST 10	0to16	21	lg mam	unid			not		10.2	
ST 11	0to18	1	deer	M1 up	L		not		2.4	advanced wear
ST 11	0to18	1	deer	calc platform+shaft frag	R		not		4.3	
ST 11	0to18	4	lg mam	unid			burn		1.1	
ST 11	0to18	3	lg mam	unid			not		1.3	
ST 6	0to20	1	deer	fem shaft frag			burn		0.7	spiral fracture
ST 6	0to20	1	deer	hum shaft frag	R		not	rodent	2.4	spiral fracture
ST 6	0to20	1	deer	hum prox frag	R		not		7.1	
ST 6	0to20	1	deer	phx1 dist	R		not		3.7	
ST 6	0to20	1	deer	vert facet frag			not		0.9	
ST 6	0to20	2	lg mam	l.b.frag			burn		0.8	
ST 6	0to20	7	lg mam	unid			burn		1.1	
ST 6	0to20	1	lg mam	l.b.frag			not	rodent	0.9	
ST 6	0to20	5	lg mam	l.b.frag			not		2.8	
ST 6	0to20	14	lg mam	unid			not		2.8	
U 1	0to10	1	deer	fem shaft frag			burn		1.4	
U 1	0to10	2	deer	fem shaft frag			not		2.7	
U 1	0to10	1	deer	mtpod shaft frag			not	rodent	1.3	
U 1	0to10	19	lg mam	unid			burn		5.5	
U 1	0to10	29	lg mam	unid			not		12.4	
U 1	0to10	1	turtle	shell frag			not		0.1	
U 1	0to10	6	unid	unid			not		0.5	
U 1	10to20	1	deer	phx2	R	imm	not		0.9	no px epiph
U 1	10to20	2	deer	mtpod shaft frag			not		5.6	spiral fracture
U 1	10to20	1	deer	phx1 prox	R		not		2.9	spiral fracture
U 1	10to20	1	deer	mtpod dist			not		5.7	spiral fracture;longit split
U 1	10to20	1	deer	fem dist frag	L	imm	not		16.4	spiral fracture;no dx epiph
U 1	10to20	1	deer	antler frag			burn		0.7	
U 1	10to20	2	deer	mtpod shaft frag			burn		0.8	
U 1	10to20	1	deer	sesamoid			burn		0.6	
U 1	10to20	2	deer	calc prox frag			not		1.3	
U 1	10to20	1	deer	fem shaft frag	R		not		3.9	

U 1	10to20	1	deer	maleolus	L		not		1.2	
U 1	10to20	1	deer	mtcar prox frag			not		1	
U 1	10to20	1	deer	mtpod dist condyle frag			not		0.5	
U 1	10to20	1	deer	tooth frag			not		0.3	
U 1	10to20	1	deer	ulna shaft frag			not		0.2	
U 1	10to20	30	lg mam	unid			burn		8.2	inc long bone frags
U 1	10to20	15	lg mam	l.b.frag			not		24.8	spiral fracture
U 1	10to20	75	lg mam	unid			not		33.2	
U 1	10to20	1	pond slider	plastron frag			not		0.7	
U 1	10to20	1	turkey	coracoid shaft frag	L		not		1.7	facet
U 1	10to20	1	turkey	tmt shaft frag			not		0.4	in 2 frags
U 1	10to20	1	turkey	tmt dist frag			burn		0.3	
U 1	10to20	1	turkey	cranial frag			not		0.3	
U 1	10to20	5	turtle	carapace frag			not		1.6	box or musk/mud
U 1	10to20	22	unid	unid			not		3.8	
U 1	20to22	1	deer	mtpod prox frag			not		2.3	
U 1	20to22	2	lg mam	l.b.frag			burn		2.3	
U 1	20to22	1	unid	unid			not		0.2	bird or sm mam

APPENDIX 2, CHIPPED STONE TOOLS FROM THE AREA OF 41CE421 AND 41CE423

Mark Walters and Timothy K. Perttula

In the surface collections on the Faulkinberry lands were a group of chipped stone tools found in the vicinity of 41CE421 and 41CE423. This appendix discusses each of these chipped stone tools individually. Measurements are in mm.

Arrow points

Unidentified (UID) arrow point. Gray chert with white inclusions on stem and barb (Figure 19a). Unifacially worked; parallel to slightly expanding stem; rectangular barbs.

Length	37.9
Width	21.0
Thickness	3.4
Stem width	9.5

Perdiz arrow point (Figure 19b). Gray chert. Serrated blade, long contracting and pointed stem, and deep downward-pointing barbs; bifacially flaked.

Length	31.1 [broken at tip]
Width	18.0 [at barbs]
Thickness	3.0
Stem width	4.0

Perdiz arrow point (Figure 19c). Translucent gray Novaculite; serrated blade; stem missing; deep, downward-pointing barb; bifacially flaked.

Thickness	2.8
Stem width	3.6

Perdiz arrow point (Figure 19d). Light gray chert; contracting stem [broken]; short downward-pointing barbs; unifacially flaked.

Width	14.0
Thickness	2.9
Stem width	3.3

UID arrow point (Figure 19e). Light gray chert; very short contracting stem; rectangular shoulders; unifacially flaked.

Width	16.0
Width	11.0
Thickness	2.8
Stem width	1.3

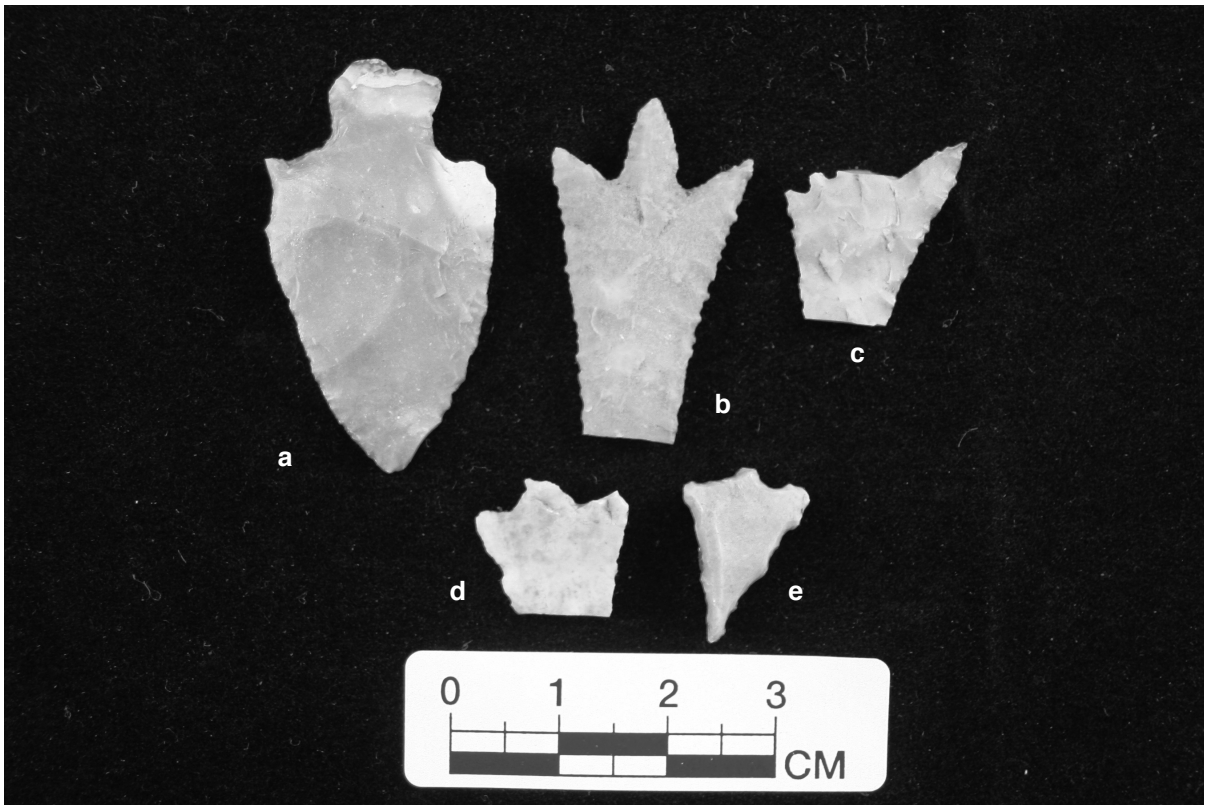

Figure 19. Arrow points: a, e, unidentified; b-d, Perdiz.

Dart points

Godley dart point (Figure 20a). Light gray chert; white and black inclusions; unifacially flaked; cortex on stem and blade; expanding stem and concave base.

Length	52.0
Width	17.5
Thickness	5.9
Stem width	12.7

Morrill dart point (Figure 20b). Dark gray chert with white inclusions; parallel stem and flat, snapped base; re-sharpened blade.

Length	43.0 [tip broken]
Width	20.2
Thickness	9.2
Stem width	13.9

Yarbrough dart point (Figure 20c). Light gray chert; bifacially flaked; expanding stem; convex base; small downward-pointing barbs.

Length	45.2 [tip missing]
Width	23.9
Thickness	9.2
Stem width	15.9

UID dart point (Figure 20d). Petrified wood; bifacial flaked; parallel stemmed; flat to slightly convex stem; small rectangular barbs; short stem relative to blade.

Length	37.5
Width	22.0
Thickness	8.0
Stem width	17.0

UID dart point (Figure 20e). Bluish-gray chert from a Central Texas lithic raw material source; bifacially flaked; re-sharpened blade.

Length	35.9
Width	21.5
Thickness	9.0
Stem width	15.1

Palmillas dart point (Figure 20f). Dark gray chert; re-sharpened blade; parallel to slightly expanding stem.

Length	33.0
Width	22.0
Thickness	7.5
Stem width	11.8

Gary dart point (Figure 20g). Yellow-gray chert; brown cortex on stem; unifacially flaked.

Length	35.0+ [tip missing]
Width	25.5
Thickness	7.9
Stem width	14.0

UID dart point (Figure 20h). Dark grayish-brown chert from a Ouachita Mountains source; expanding stem; flat to slightly convex base; small rectangular barbs; re-sharpened blade.

Probable Middle Archaic dart points

UID dart point (Figure 21a). Yellowish-gray chert; bifacially flaked; extensively re-sharpened blade.

Length	23.6
Width	18.9
Thickness	7.2
Stem width	15.1

Morrill dart point (Figure 21b). Heat-treated gray chert; cortex on base; parallel stem and flat base; re-sharpened blade.

Length	33.2
Width	16.0
Thickness	7.4
Stem width	13.8

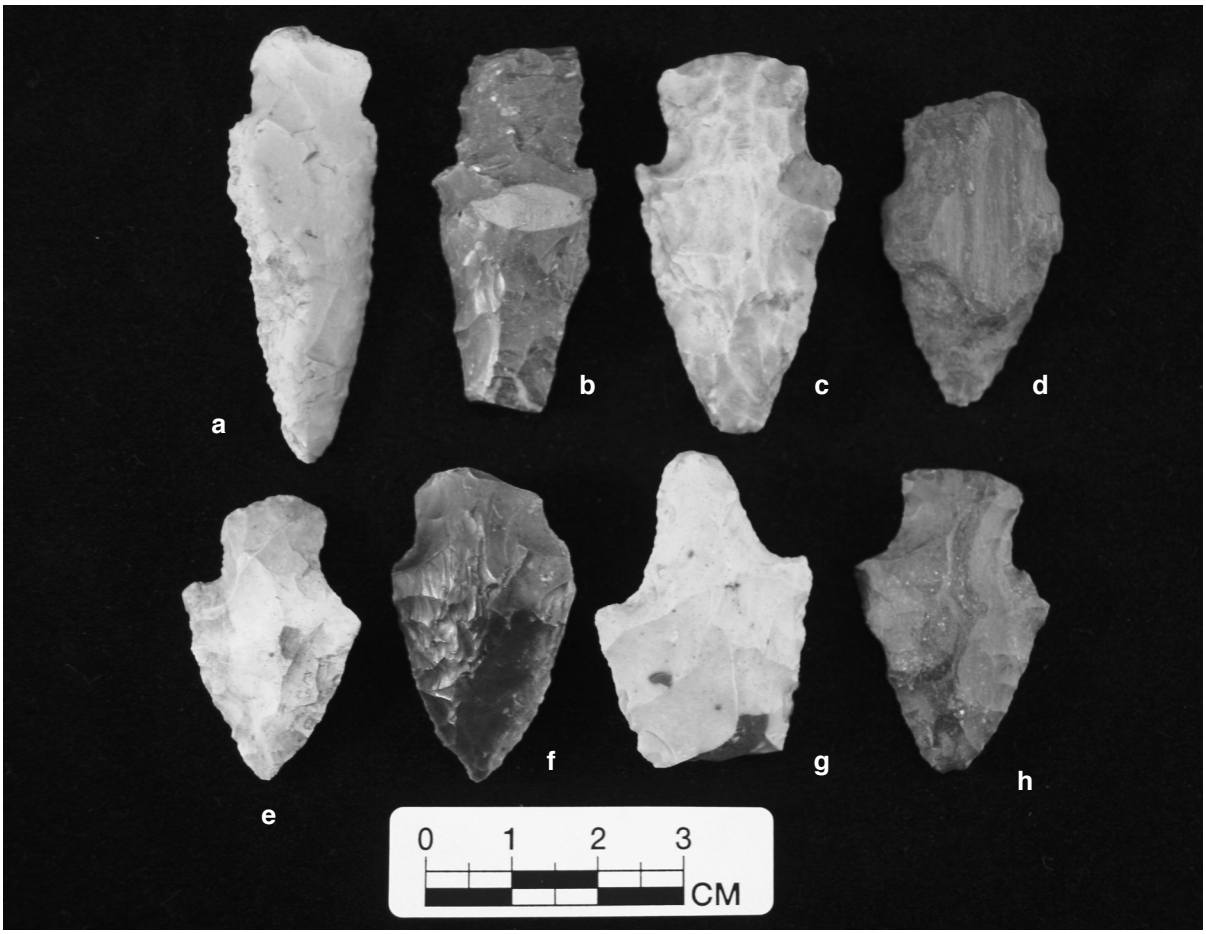

Figure 20. Dart Points: a, Godley; b, Morrill; c, Yarbrough; d-e, h, unidentified; f, Palmillas; g, Gary.

UID dart point (Figure 21c). Quartzite; bifacial flaked; re-sharpened blade; expanding stem with a shallow concave base (11.0 mm deep).

Length	28.0
Width	14.0
Thickness	7.8
Stem width	11.6

UID dart point stem fragment (Figure 21d). Dark gray chert; parallel and straight stemmed; bifacially flaked.

Thickness	6.7
Stem width	15.4

UID dart point (Figure 21e). Light gray chert; expanding stem with shallow concave base (6.0 mm); extensively re-sharpened blade; bifacially flaked.

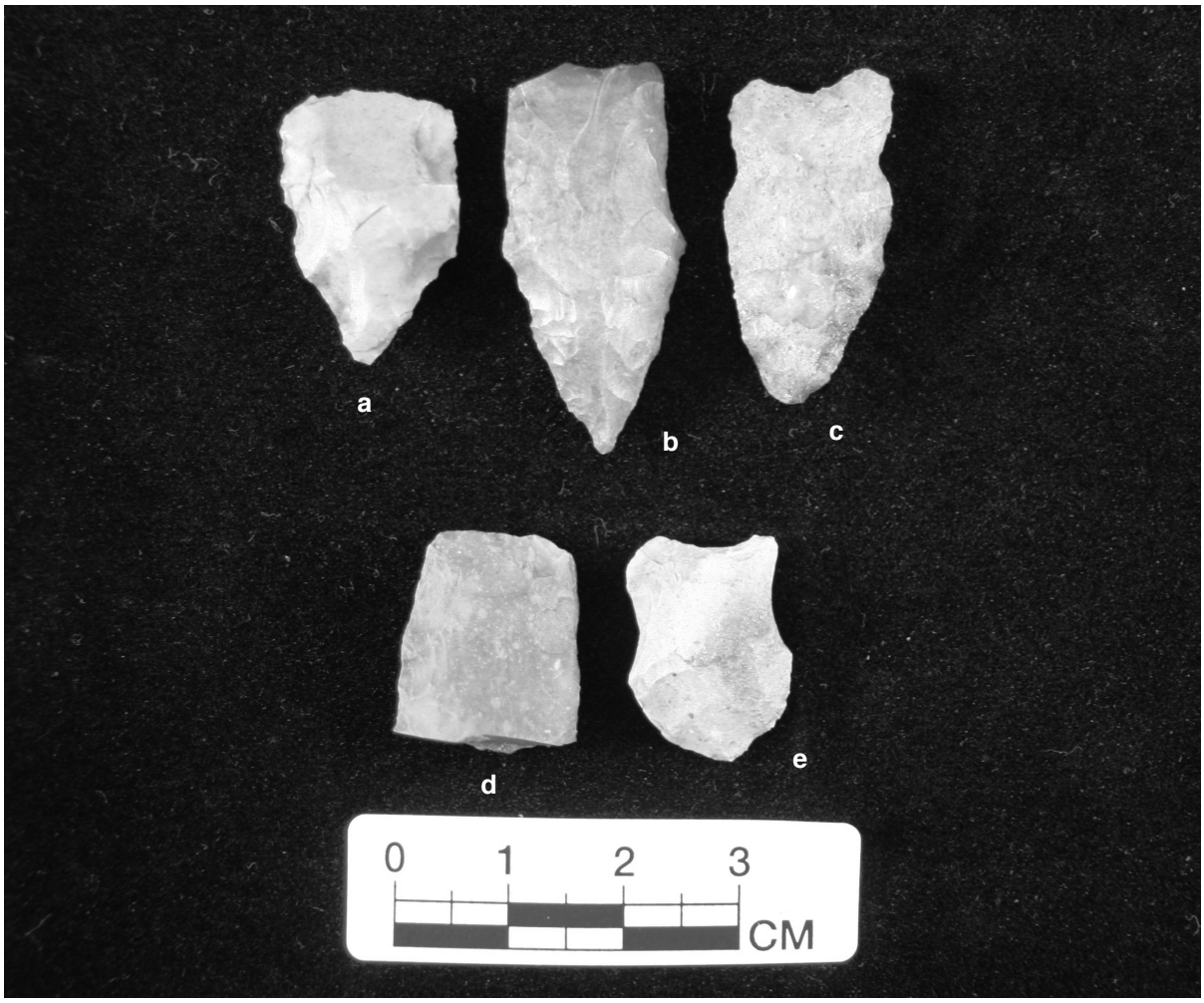

Figure 21. Probable Middle Archaic dart points: a, c-e, unidentified; b, Morrill.

Late Paleoindian points

Late Paleoindian point base, cf. Dalton/Plainview (Figure 22a). Light gray chert; bifacially flaked with edge grinding; concave base.

Length	29.2
Width	21.0
Thickness	7.6
Stem width	21.0 [ear to ear]

Length of flute scars 19.0, 16.5, and 13.8
Length of grinding 17.0, 16.2, 18.0, 18.0

UID Lanceolate dart point (Figure 22b). Yellowish-gray chert; parallel stemmed; edge and stem grinding; bifacially flaked; flat base; reworked into drill.

Length	30.0 [tip missing]
Width	17.7
Thickness	6.3
Stem width	16.5 [near base]

Angostura dart point (Figure 22c). Yellowish-gray chert; bifacial worked; flat base with hinged flake; edge grinding; reworked into drill.

Length	26.0 [tip missing]
Width	14.0
Thickness	4.9
Edge grinding	12.5, 15.0

Figure 22. Late Paleoindian points: a, cf. Dalton/Plainview; b, unidentified lanceolate point; c, Angostura.